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Sanitary Engineer
Plumber and Steamfitter of Canada
VOL. XIV. PUBLICATION OFFICE, TORONTO, JANUARY 1, 1920 No. 1

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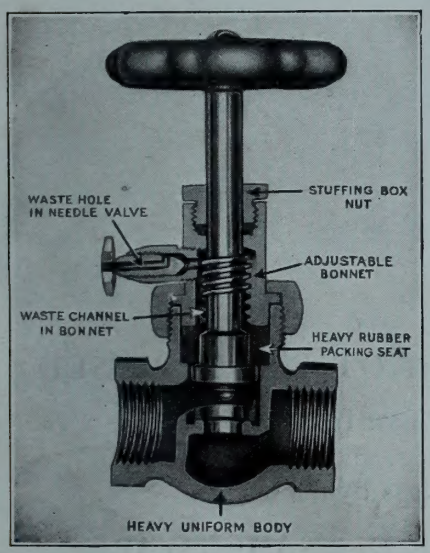
Stop and Waste Cock

A "Two in one Fitting."

With five points of Superiority——

——five selling points in addition to the prestige that goes with the word "Emco," the trademark of its makers.



Cross Section
"Emco" A 332 Stop and Waste Cock

As a straight Stop-Cock or a Stop and Waste Cock it is equally adaptable.

Study the marked points in the cross sections. Pay particular attention to the arrangements for waste water.

First—the adjustable bonnet which allows the needle waste valve to be placed in proper position for catching waste water.

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A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

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No. 239

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Working together, as we can and should, may it be for all concerned a very

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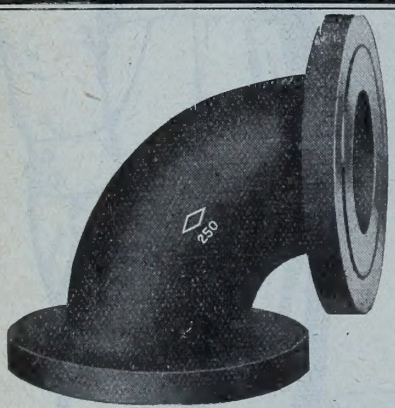

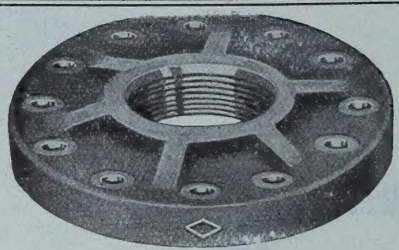

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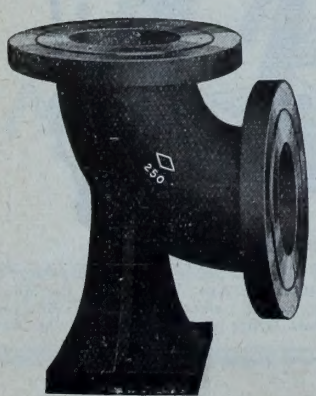

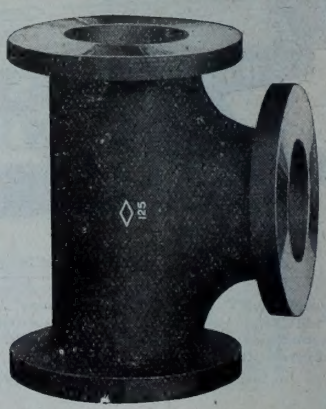

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DODD HEATING SYSTEMS
LIMITED

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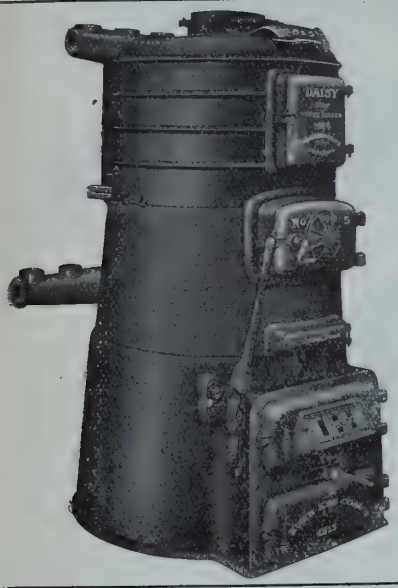

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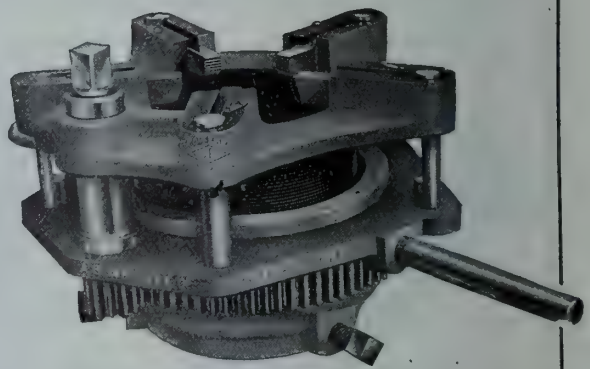

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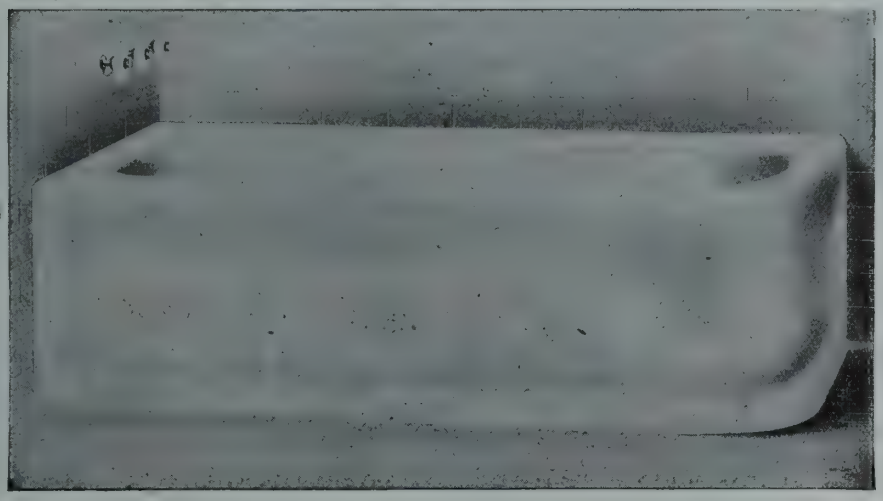

These Baths represent the last word in design and finish, and are made to build into Right or Left Hand Corner or into a Recess.

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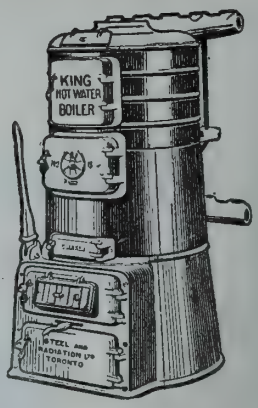

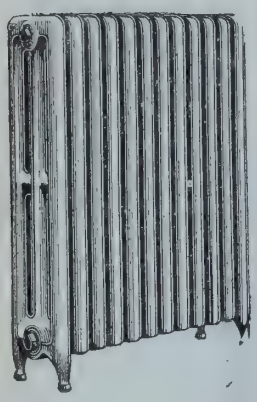

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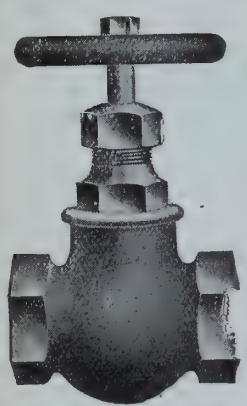

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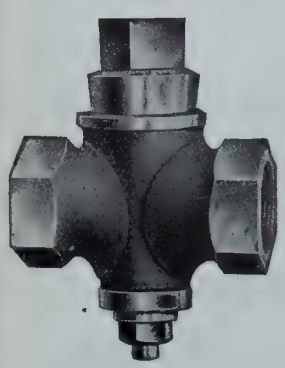

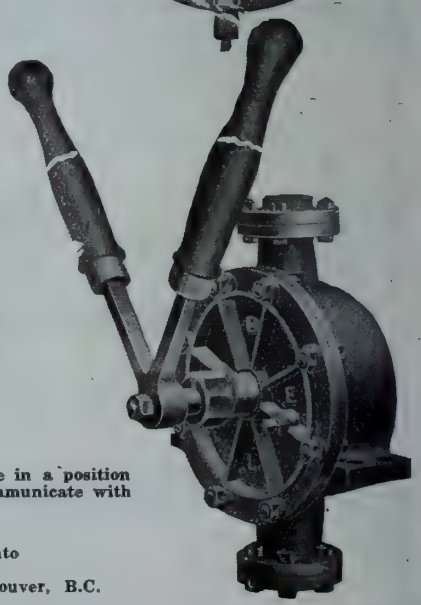

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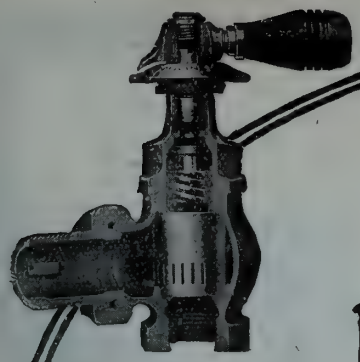

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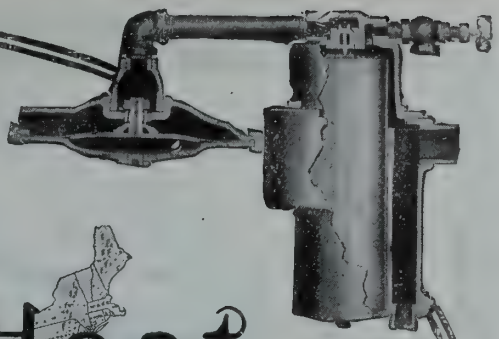

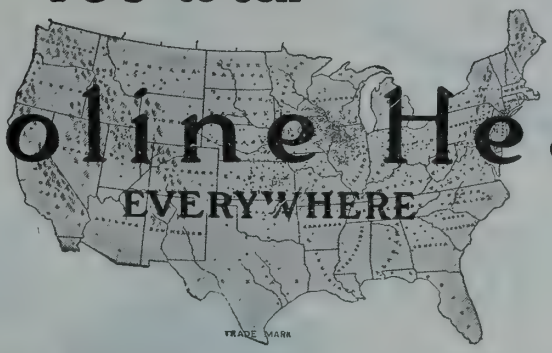

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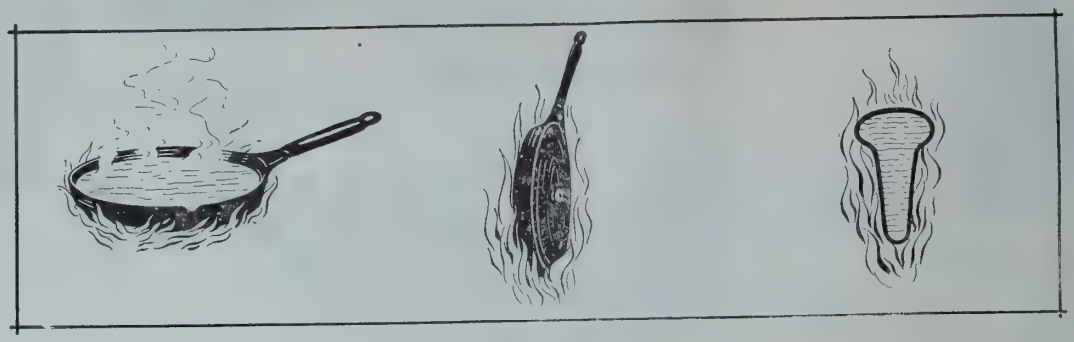


Cutting Down Coal Costs With a Simple Sauce Pan

WHETHER you have made fudge on the kitchen range, or cooked trout over a brookside camp-fire, you know full well that it's the shallow pan with the broad bottom that heats up quickest.

Such being the case, it occurred to us, why not make a boiler on the same heat-up-quick principle? And so we did. Did it by sort of putting the pan on edge, so that in addition to the heat coming against the bottom and sides, it would also come against the top, so to speak.

In short, the on-edge pan would be practically surrounded by fire. Just naturally, the shallow amount of water heats in a surprisingly short time.

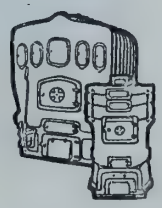
A glance at the interior view of the boiler shows you how these elongated, on-edge pans, with their expanded tops, have been placed across the boiler directly above the fire.

You can well imagine how the hot flames lick around them, quickly sending their heat to the radiators, either in the form of hot water or steam.

All of which means you can burn less coal, because you capture more heat from the coal you burn.

More goes into the radiators, less goes up the chimney. The interesting thing about the Burnham Boiler is, that the way it is made, and the things it will do, actually are **interesting.**

It's why you will find our Happy Solution Book all its name implies. Furthermore, it tells a lot about heat and heating, besides the boiler. Just the kind of things, in fact, that you have wanted to know, but didn't know how or where to find them. You are welcome to a copy of the Happy Solution, along with our hearty wishes for a Happy New Year.



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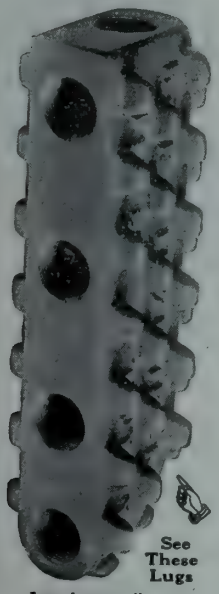

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The Patented Lugs prevent deadening of fire.

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Every sanitary engineer should possess this book. It deals with pipe making of all kinds, cast iron, wrought iron, steel, wood and tile pipe. It is valuable because it gives a true idea of how much service pipe should give under various conditions.

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ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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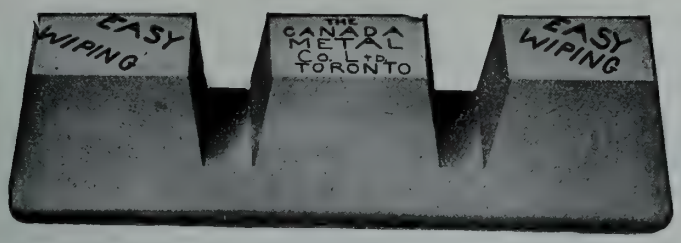

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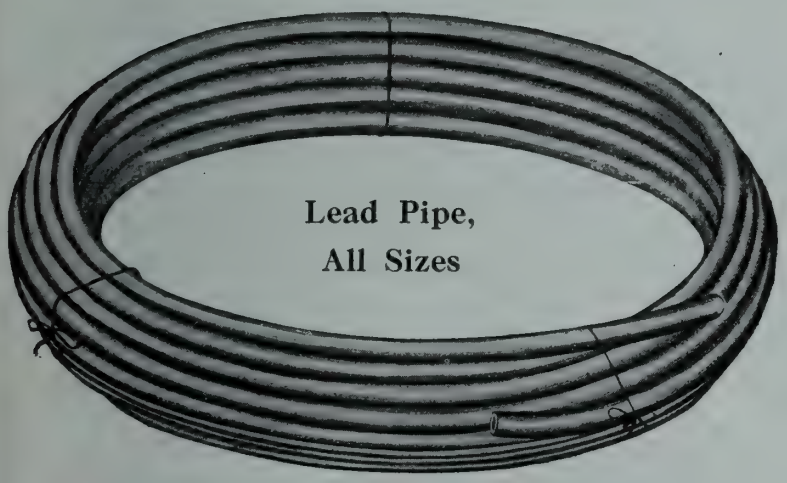

Lead Pipe,
All Sizes

The Canada Metal Co., Limited
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The Land of Promise

A Little "Straight Talk" to the Canadian Plumbing Trade

THE NEW YEAR IS HERE; 1920 stretching out before us like a LAND OF PROMISE, overflowing with wonderful business possibilities. There has never been a better prospect in the world's history, the good things are in view to be taken in our hands if we have the steadfast will to grasp them.

In every part of the world to-day men are trying to make things better. Sick of war and of the things that do not profit, the best elements are reaching out for mastery and the GOLDEN DAYS are certain to come in all their fullness. Here and there the pessimists and the trouble-makers rear their heads, but these must be overcome with all speed and best purposes and highest endeavors must overwhelm all those who cry out against peace, production and prosperity.

Let us all rise now to our great opportunities. Let us seek out diligently the points of weakness in our business methods and see that these are made strong, lay well-considered plans and follow a straight course determined on success. This is no time for hesitation. No idea of "wait and see" can be entertained for a moment. Every thought and every muscle must be strained to the one determination to make 1920 the very best year so far in the world's history — the year which will mean greatest progress and prosperity in Canadian business.

Make good resolutions and keep them. To-day is the best day of all, let us make the greatest use of it. The watchwords "EFFICIENCY" and "SERVICE" will be splendid guides on our road to success and satisfaction .

TRADE B.O.T. MARK

THE CANADIAN BRASS CO.
LIMITED
GALT, ONTARIO

CANADIAN BRASS GALT ONT

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Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol.. XIV TORONTO, JANUARY 1, 1920 No. 1

Freight Rates May Again be Increased

Canadian Railways, it is Stated, Will Shortly Ask For Permission to Advance Present Schedule 20 Per Cent.—Wage Increases to Employees a Big Factor

ACCORDING to information given to SANITARY ENGINEER, application will be made very shortly to the Dominion Railway Commissioners by the railways of Canada to raise their freight rates.

It is stated that the request will be that existing rates be advanced by twenty per cent.

If this request is made and granted it will have a very important bearing on the entire price situation and on all commodities.

PREVIOUS ADVANCES

It will be remembered that in November of 1916, after a very thorough investigation into railway rates in Eastern Canada, the roads were allowed to raise freight rates five per cent. in territory east of Port Arthur.

On March 15, 1918, an increase of fifteen per cent. all over Canada became effective.

On August 1, 1918, another increase of 25 per cent. was allowed in rates.

EASIER FOR THE WEST

This means that while Eastern shippers have, since 1914, had rates advanced about 45 per cent., firms in the West are only hit to the extent of 25 per cent. because in 1914, after an investigation of Western rates, a considerable reduction was made.

NEED THE MONEY

The railways, it is stated, are facing a situation where something must be done and done soon to meet the very greatly increased cost of operation. The recent announcement of President Wilson that the American railways are to be returned to their original owners is of much interest in railway circles, not alone because of the fact that Government administration has proved unsuccessful, but because of the course to be pursued in the future.

As soon as the railways are returned an advance in rates in the States is expected in order that the huge debts incurred may be met and the railways put on a basis where they can "carry on."

WILL AFFECT CANADA

The return of the American railways is to take place shortly and what develops after their former operators are again in charge will have a very important bearing on what is done in Canada. According to a man in very close touch with transportation matters, an advance in rates in the near future is practically inevitable.

While no figures are available showing the proportionate costs of operation of Canadian railways, it may be assumed that they are approximately reasonably close to the American lines.

A report just issued regarding the railway situation across the line shows that as a result of wage increases that have been made labor is now receiving no less than 54.06 per cent. of the total revenue.

What this really means may be understood better, perhaps, when it is stated that the next largest item is for material. This is usually one of the "heavy" costs, as new cars have to be provided for, new bridges, locomotives, road improvements, etc. The figures show that this only takes 14.40 per cent. of the money.

FUEL IS SMALL NOW

In spite of the fact that millions of tons of coal are consumed annually, this expenditure now is only about one-fifth of the amount being paid to labor. The exact figures show that the percentage is figured down to 11.11 per cent. for fuel.

That the Canadian railways are not a great way behind these figures is shown by an instance of how salaries have been increased. Before the war the agent at a point in Ontario was receiving $45 a month. At the present time his income is more than that per week. It is stated that conductors are in some cases drawing $350 a month.

TELEGRAPH RATES, TOO

As stated in previous issues of SANITARY ENGINEER, another request for higher rates that affects business men is that of the telegraph companies for increased rates.

This matter is still under consideration and investigations are being made with a view of arriving at a decision. This, it is understood, will be given early in the New Year.

In case an increase is granted, and there is every reason to believe that it may be, as there has been no great opposition to the request, it would not be as serious or so widely felt as an increase in railway rates. Its effects upon retailers in general would be comparatively light. Some manufacturers have telegraph bills that run into large sums annually, but these are spread over so many commodities, as a rule, that any increase in rates is not expected to be a factor entailing any price advances.

The general effect, however, of an advance in railway rates particularly is the increased amount

(Continued on page 27)

A Very Valuable New Series

ON the opposite page will be found the first of a new series which will contain features of great practical value and general interest to the men in the trade.

Many men have a superficial knowledge of some of the matters about which they should in their own interests know the intimate details. The series of articles will aim to show them just why certain things are done and how they are done.

A Broad Field

This is a broad field and it is to be treated in a way that will make clear everything that should be made clear and it will be done in an interesting way.

You should keep this series for reference. It is valuable.

In order that it may be more readily referred to the articles have been arranged alphabetically. A partial list of the subjects to be taken up includes: Absolute Temperature, Air, Anemometers, Accelerated Systems, Asbestos, Boilers, Belts, Cast Iron, Combination Systems, Combustion, Dimensions (standards), Fans, Fluids (Laws Governing), Formulae, Furnaces, Fuels, Galvanized Iron, Generators, Grates, Gravity Systems, Humidity, Hydrostatics, Joints, Materials, Mixing Dampers, Molecular Theory, Mud, Packing, Pipe Pressure, Radiators, Registers, Regulators, Rules, Steel, Statics, Traps, Tables, Tanks, Tests, Thermometers, Thermostats, Valves, Vapor Systems, Ventilation, Vacuum Systems, Water, Zero.

The list is by no means complete; but should be sufficient to indicate how varied are the subjects to be covered in this series.

Illustrations

The entire series will be illustrated with drawings, or photographs, where such are necessary to clearly convey to the reader the meaning of the text.

Specifications

Under the letter "S," specifications will be analyzed in detail. Clause by clause, different specifications will be examined and we shall point out why certain fittings are used in good work.

Forced Hot Water Systems

These systems are returning to popular favor; so we shall deal at some length with the principles governing, and the details used in, this class of heating work.

Tables will be given under the letter "T," and references will be made to those tables when subjects requiring tables appear under another heading.

Electrical Notes

There are certain terms used in electrical work that the ventilating engineer should be familiar with. The meanings of the terms will be given, together with such other information as may ordinarily be required by the practicing engineer.

All Subjects to be Treated Fully

Beginning with the letter "A" we shall go through the alphabet, touching on, and treating fully, every item from "Absolute Temperature" to "Zero." From time to time we shall furnish an index indicating the dated appearance of certain letters; so that our readers may find at any time articles in which they are interested.

Employees of James Robertson Co., Ltd. at St. John, Guests at Banquet

ST. JOHN, N.B.—An enjoyable time was afforded the staff of the James Robertson Co., Ltd., at a banquet tendered the employees by the firm. E. J. Terry, manager, was chairman. The dinner was marked with much enthusiasm, and with the best of goodwill manifested between the staff and the management. A pleasing incident in connection with it was the presentation by the manager of a cheque equivalent to $1 for each year of service they had seen to each of the staff. The range in amounts of the cheques was from $1 to $35. An attractive toast list was carried out.

The Toast List

"The King" was proposed by Mr. Terry, and responded to in music. George Keeffe proposed "The Firm," and the manager responded, saying that the dinner marked a new departure in the policy of the company, as it was the first they had given their employees since the founding of the firm. It was his greatest hope that the maritime branch should be always in the forefront, and lead all other branches in Canada. The company, he said, was the largest plumbing supply concern in Canada and, with possibly one or two exceptions, in the British Empire.

Mr. Terry paid a warm tribute to C. M. Robertson, the head of the firm, and his personal interest in his employees.

Among the social events planned for the coming summer by the company, he said, was a picnic for the members of the firm and the staffs, with their families, and this gathering, he said, would be typical of the community spirit which he hoped would be soon the prevailing spirit of the day.

"Our Associates"

Mr. Terry then proposed the toast "Our Associates," to which the assistant manager, Charles Ramsay, replied. He referred to the cordial relations existing between the firm and its employees. He made mention of the sterling qualities possessed by the late manager, J. Harry O'Neil, and concluded with a glowing tribute to the worth of the present manager.

"Our Guests" was replied to by R. W. Wigmore, M.P. "The Ladies" was proposed by D. A. Macaulay, and responded to by Mathias Hamm. In an enjoyable musical and literary programme, those taking part included Miss A. Wood, Miss Akerley, H. McGuiggan and Frank Costley, who presided at the piano.

Claim New Fuel is Better Than Gasoline

NEW YORK.—Successful tests of a motor fuel declared to be not only more economical than gasoline, but also easier on motors, are announced by Otto Praeger, Second Assistant Postmaster-General in charge of the Air Mail Service.

The fuel consists of 38 parts of alcohol, 30 of gasoline, 19 of benzote, 13 of ether, and four of toluol. Ingredients making up the one and one-half parts were not given.

Mail-plane No. 35 was used in the tests between New York and Washington. Another plane, using high-test aviation gasoline, was used as a check. A saving of 3.9 gallons an hour in favor of the synthetic fuel was indicated. Economy of lubricating oil also was shown by the tests. After 125 hours in the air, the two motors were torn down, and that in which the new fuel had been used was found in fine condition, with a smaller deposit of carbon.

Absolute Temperatures

First of a New Series of Articles Specially Written for "Sanitary Engineer" — Keep These Articles Where You Can Read Them Over and Refer to Them at Any Time

THE term "absolute temperatures" means temperatures measured from the absolute zero point. Absolute zero is 460 deg. below the zero point on the ordinary Fahrenheit thermometer.

When the reader runs across this term he will understand that all degrees above the ordinary Fahrenheit zero are added to the 460 deg. All degrees below the ordinary Fahrenheit zero are subtracted from the 460 deg. Thus, 470 deg absolute temperature is to be considered as 10 deg. above zero, and 450 deg. absolute temperature is to be considered as 10 deg. below zero.

Air

The air that surrounds the earth as a transparent gas extends to a height that has not been accurately ascertained. Some scientists believe that the atmosphere has a height of 80 to 100 miles; other scientists say that the height is only about 45 miles.

Air Possesses Weight

If a globe full of air be weighed, and then weighed after its air has been extracted, it will be found to weigh a good deal less than it did at the first weighing.

The pressure of the air upon the surface of the earth can be ascertained in this way: Take a small glass tube having one closed end, and fill that tube with mercury. Place a finger over the open end of the tube, and, reversing the tube, thrust the open end down into an open vessel containing a quantity of the same fluid. When the finger is removed from the open end of the tube the mercury will begin to fall, but only for a short distance. A considerable quantity of the mercury will be held in the tube by the weight of air pressing on the surface of the mercury in the open vessel.

Sea Level Pressure

The pressure of air on each square inch at the level of the sea is 14.7 pounds, or a little more than a ton on each square foot. The pressure is not constant and varies with the temperature and with the amount of water-vapor in the atmosphere.

Air is not heated to any extent by the direct action of the sun. The sun heats the earth and the earth heats the air by convection.

Because the air allows heat to pass through it without becoming heated itself it is known as a diathermic body.

Gets Colder

The greater the height of the air from the earth's surface the colder it is. Roughly the decrease in temperature is 1 deg. for every 350 feet.

Air is a mechanical mixture, not a chemical compound. In 100 parts of air the average composition is as follows:

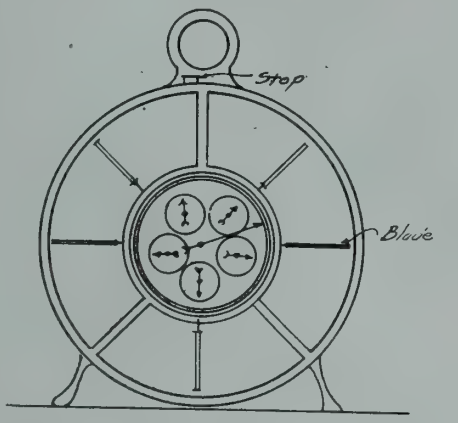
	Per cent.
Nitrogen	77.95
Oxygen	20.61
Carbonic anhydride	0.04
Aqueous vapor	1.40

There are traces also of ozone, ammonia, carburetted hydrogen, and nitric acid. In populated centres there may be traces of sulphuretted hydrogen and sulphurous anhydride.

Nitrogen is a gas of negative properties. It serves to curb the violent properties of the oxygen.

Oxygen is the vital element of the atmosphere. It is this in combination with the carbon of a food whereby the functions of life are performed.

Ozone exists in outdoor air in the proportion of 1 volume to 70,000. Its purpose is to oxidize and render harmless the gases and emanations that come from putrefying vegetable and animal matter. Ozone cannot be detected in any roofed building.



DYNAMIC ANEMOMETER

Carbon Anhydride

Carbon anhydride is a poison produced when carbon is burnt in air or in oxygen. When carbon is burnt in a deficient supply of air the product is carbonic oxide. Carbonic anhydride is the air-food of the vegetable world as oxygen is of the animal. The amount of carbonic anhydride contained in outdoor air varies from 3 to 6 parts in 10,000.

Aqueous vapor is always present in the air. It is by this that a great deal of heat is distributed over the earth. When water is changed into vapor it takes up heat that is liberated when the vapor is changed back into water. The amount of water contained in the air depends upon the temperature of the air, the height from sea level, and the direction of the wind. As the temperature of the air rises, its capacity for retaining water-vapor increases.

Caused by Electricity

The formation of nitric acid in the air is supposed to be caused by electrical discharges. The electric discharge causes a portion of the nitrogen and oxygen to combine; this forms nitric anhydride, which dissolves and forms nitric acid. Certain writers believe that it is formed through the oxidization of ammonia by ozone.

Air is a gas and is therefore subject to the laws governing such bodies. It is well, then, to make some inquiry as to how gases act under certain conditions.

If different gases are turned into a closed room, each gas will expand throughout that space. The mixture of gases will not settle in layers unless the gases are completely saturated. Some of the heavier gases, such as carbon dioxide, may settle to the lower levels for a short period, but will in time mix with the lighter gases above.

If compound gases having different heat capacities are mixed under pressure they will show a tendency to separate while cooling. This is exhibited by the way steam and air contained in pipes tend to separate when the steam falls in temperature.

Anemometers

An anemometer is an instrument used in ascertaining the velocity of air currents. There are two types of this instrument in general use. One type is known as a static anemometer; the other as a dynamic anemometer.

The static anemometer consists of three main parts: a dial, an indicator, and a disc. The vane is connected to the indicator by a lever arm. When the static anemometer is placed in a current of air the disc is driven forward so that it, in lifting the lever arm, swings the indicator around on the dial to a point corresponding to the pressure of the air current. Static anemometers do not make very accurate indications, and for this reason the dynamic anemometer is used when accurate readings are to be made.

Like a Windmill

The dynamic anenometer is an instrument resembling a small windmill, the blades of the main wheel being turned at an angle of about 45 deg. with their housing. The axle of the main wheel is connected to the unit indicator on the dial. This same axle has a gear which, in ten revolutions, turns the axle of the tenth indicator once. Gears are arranged on other indicators up to the point of the limit for anemometer records.

The anemometer is so built that one

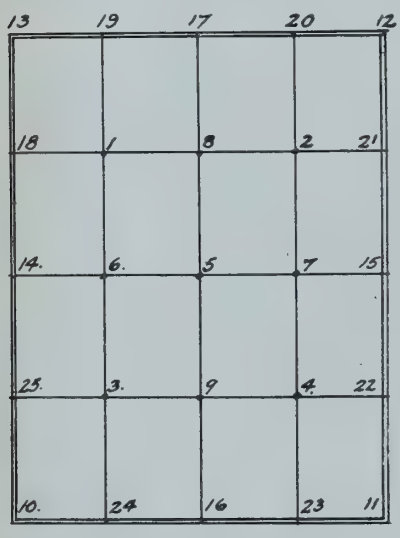
revolution of the main wheel is made by a linear foot of air passing through the housing of the blades.

In making a reading with the anemometer, we first take a note of what figures are already recorded, so that in our final record we may deduct the first record. We then place the anemometer in the path of the air, and, when the vanes have gathered speed, press on the indicator releasing stop. If we are timing the air discharge by the minute, we, after one minute's duration of indication, press again on the releasing stop for the purpose of locking the indicating mechanism. The stop acts similar to the stop on a stop-watch.

Increase the Reading

There is a certain loss of indication while the indicator is "gathering way," so it is, therefore, necessary to increase the reading by a certain constant. The manufacturers of anemometers usually mark on the instrument the constant necessary.

The air that is discharged from a pipe or a face travels much faster through the centre of its path than through the sides, so we must make an average reading for the entire opening. If the readings are made close to the sides of the openings, a much lower reading than the actual discharge will result, and conversely, if the discharge is read at its centre, the reading will be much higher than it should be. Then, again, the discharge through the upper part of the opening is likely to be much more rapid than it is at the lower part. Thus we see why the readings should be made at the twenty-five points indicated on the drawing:



This only applies to large openings of about 12 square feet. Small openings may be safely read at the points marked 1, 2, 3, 4 and 5.

Reduces Discharge

The grille of a register face reduces the discharge, so the anemometer must not be held too close to the face; the velocity through the small openings does not correspond to the average discharge. Now, if the anemometer is held at some distance from the face, a correct reading will not be obtained because the air discharged has time to mix to some extent with the air beyond the borders of the opening. It will not do to remove the register face for the purpose of making the reading because the absence of the register face will result in a greater discharge of air than can possibly occur when the register face is in place. The best thing to do is to make a frame at least one foot deep and then, after placing that frame around the sides of the opening, make our readings at the front line of the frame.

To make accurate readings, the temperature of the air must be taken at all points of the reading.

Be sure and stand clear of the air discharge so that the free-way be not obstructed.

Accelerating Coils

This is the term applied to coils that are placed in flues to accelerate the speed of air currents. These coils are often put in foul-air extracting flues for the purpose of maintaining a temperature high enough to create a positive draft in such flues.

The area of surface required is in proportion to the height of the flue, and to the temperatures required.

Air Discharge

In the SANITARY ENGINEER of May 15, 1919, there appeared a table giving the quantity of air discharge during a minute through one square foot of area in flues of various heights. For the convenience of our readers we are repeating that table here.

Excess of Temperature of Air in Flue Above That of External Air.

Height of flue in feet	10	15	20	25	30	50	100
10 ..	108	133	153	171	188	242	342
15 ..	133	162	188	210	230	297	419
20 ..	153	188	217	242	265	342	484
25 ..	171	210	242	271	297	383	541
30 ..	188	230	265	297	325	419	593
35 ..	203	248	286	320	351	453	640
40 ..	217	265	306	342	375	484	684
45 ..	230	282	325	363	398	514	724
50 ..	242	297	342	383	419	541	765
60 ..	264	325	373	420	461	594	835

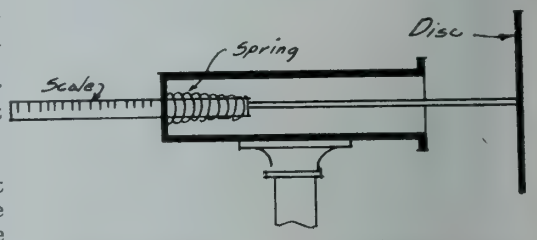
In the making of this table the external air temperature was assumed to be 32 deg. above zero Fahr. An allowance of 50 per cent. was made for friction. The table is not entirely correct for a higher outdoor temperature than 32 deg. above zero, nor is it for galvanized iron ducts, yet it can be used as an approximate standard for average conditions.

To use the table in making an estimate of the area required, we may assume that we wish to have the air travelling in the flue raised to a temperature of 80 deg., and that the outdoor temperature is 50 degrees above zero. The accelerating coils are just 40 feet down from the top of the flue. We refer to the table and note that, when air in a flue of this height is 30 degrees higher than the external temperature the air velocity will be 375 feet in one minute, or 22,500 feet per hour.

Raise Temperature

The air within the room is considered as having a temperature of 65 deg. above zero. So our problem is to provide enough heating surface to raise the temperature of 22,500 cubic feet of air 15 degrees in one hour.

In a later article we intend to give a table showing the efficiency of various types of radiators in various conditions. However, for the purpose of this article we can assume that the accelerating coil is made of pipe. Radiating surface such as pipe coils, set in a current of air moving at a velocity of 375 feet a minute will give up 700 B.t.u. in an hour off



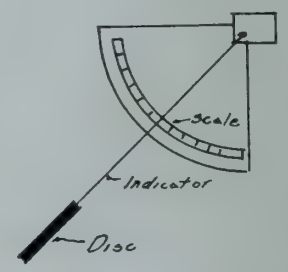
OLD STYLE STATIC ANEMOMETER

one square foot. These figures are for steam at 1 lb. pressure and for a "mean" flue temperature of 62 deg.

It requires 6,135 B.t.u. to raise the temperature of this 22,500 cubic foot of air in one hour. When we divide this 6,135 by 700 we find that for each square foot of a flue 40 feet high we require 8.7 square feet of accelerating coil.

Method of Figuring

The method of figuring for these coils and the table giving the draft efficiency of flues for different heights, should indicate why accelerating coils must be kept well down in the flues. It is no uncommon thing to find accelerating coils placed within 10 feet of the top of the flue. In such cases the draft in the flue is only 180 feet a minute, and the efficiency of the accelerating coil of air efficiency of the accelerating coil 478 B.t.u. per hour. However, the quantity of air travelling through such a flue is less than will be heater to 15 degrees by 8.7 square feet of accelerating coil; about 6 square feet of coil would be sufficient to warm all of the air that would pass up such a flue. If we wished to get exactly the same volume of air discharged from the short flue as from the long one we must arrange to heat the air in the short flue to a temperature



STATIC ANEMOMETER.

of about 105 deg. This would require an accelerating coil of 29 square feet for each square foot of flue area.

(Continued on page 28)

ANOTHER NEW FEATURE

FOR

SANITARY ENGINEER

Plumber and Steamfitter of Canada

We have recently announced in SANITARY ENGINEER, Plumber and Steamfitter of Canada, a number of important new features for 1920. We are glad to advise our subscribers of another new and important feature which will appear in SANITARY ENGINEER, commencing with the February 1st issue.

SANITARY ENGINEER has purchased the exclusive right to publish a series of articles entitled "Sewage Disposal for Small Communities." This series covers a wide range of important subjects. After appearing in SANITARY ENGINEER it is the intention of the author of this series to publish the series in book form. The author, Mr. Bernard E. T. Ellis, describes the book as a practical handbook on the construction of small sewage disposal work suitable for private houses, public institutions, and small country districts. There are 84 illustrations to be used in connection with this series.

The contents may be briefly described under the following headings:

1 Preliminary and general description of sewage.

2 Cesspools and septic tanks.

3 Construction and design of small septic tanks for private houses.

4 Construction and design for larger installations, including sedimentation tanks, septic and two-storey Imhoff tanks suitable for all classes of public buildings and small country towns.

5 General description of private house drainage.

6 Disposal of sludge and design of small pumping installation.

7 Land filtration and artificial bacteria bed.

In view of the increased attention being given to all subjects appertaining to public health the author of the series has compiled the book describing the many successful methods that are being and that have been adopted for treating and disposing of sewage from small communities, thus filling a long-standing want of sanitary engineers, architects, and for a reference explaining the design of small modern sewage installations for the removal of foul water waste on the best sanitary ground with the least nuisance.

Mr. F. R. Maxwell, president of the Canadian Society of Domestic Sanitary and Heating Engineers, was asked to examine this series and he stated in part as follows: "I believe the information contained in the series will be invaluable to the men in the trade. There are many points made clear and many phases of practical work taken up, which would puzzle most men if they were called upon to do the work discussed. I believe that information of this kind is greatly needed and should be read carefully."

This series will be reproduced in SANITARY ENGINEER, Plumber and Steamfitter, at great expense, in a series of splendidly illustrated articles, but we believe our readers will greatly appreciate this new feature. Further details regarding the new series will appear in next issue and the first article of the series will appear in the February 1st issue.

Ontario's Proposed New Regulations

Important Error in Weights of Pipe Found as Result of Publication of Details in Previous Issue of "Sanitary Engineer—The New By-laws Planned in Connection With Gas Fitting

As a result of the publication in the previous issue of SANITARY ENGINEER exclusively, of the proposed new plumbing regulations for the Province of Ontario, an important error was revealed. This was discovered in connection with the specified weights as provided for under the proposed Provincial schedule of both cast iron pipe for underground (heavy) and also of medium cast iron pipes for waste or vents.

This error as soon as discovered was taken up with the Provincial authorities and in this way will be promptly rectified. Had the weights gone through as provided for in the original regulations, it would have been necessary to amend the regulations. This, as every man in the trade knows, would involve annoying and serious delays, besides causing much inconvenience to those trying to secure pipe in the weights specified.

The publication of the proposed regulations has been followed by men in the trade throughout the Dominion with the keenest interest. In presenting to them this important information SANITARY ENGINEER scored what is known in the journalistic world as a "scoop." That is, it was the first journal to secure the information and pass it along to the trade. This is the aim of the paper, to give the men in the trade, all the time, information that bears on the sanitary and heating businesss.

Below will be found the correction made in the weights of pipes and also the remainder of the proposed plumbing regulations and the proposed new gas regulations.

The proposed Ontario regulations are continued herewith from the point where they were left off in the previous issue of SANITARY ENGINEER.

Soil, Waste and Vent Pipes

63. All house drain, soil, waste or vent pipes shall be of cast iron, galvanized wrought iron or brass, except for branch waste and vent pipes which may be constructed of lead.

64. Galvanized wrought iron two inches and less in diameter may be used for branch vent pipes.

65. The diameter of soil and waste pipes shall not be less than those specified in the following tables:

Main soil pipe	4 inches dia.
Main soil pipe (for building six or more floors)	5 inches dia.
Branch soil pipes	4 inches dia.
Main waste pipes	2 inches dia.
Main waste pipes for kitchen sinks on five or more	
Branch waste pipes for floors	3 inches dia.
kitchen sinks, baths, or laundry tubs	1½ ins. dia.
Branch waste pipes for three or more fixtures .	2 inches dia.
Branch waste pipes for lavatory basins	1¼ ins. dia.

66. No branch waste pipes for other fixtures shall be less than one and one-quarter inches in diameter.

67. In large buildings, or when batteries of fixtures are used the size of pipes shall be approved by the Local Board of Health.

68. The arrangement of drain, soil, waste and vent pipes shall be as direct as possible, and all horizontal pipes shall be run on a uniform grade of one-half inch to the foot where possible, but in no case should the grade be less than ¼ inch to the foot. Offsets will only be permitted when unavoidable and shall be made at an angle of not less than 45 degrees.

69. When wrought iron pipes are used for soil waste or vent pipes, it shall be galvanized and free from scale, the burr formed on the inside by cutting shall be carefully reamed out to the full size of the pipe and be threaded with a full tapering thread and brought up butt to the shoulder of recess in the fittings.

70. No waste pipe from any fixture shall be connected to the closet bend, but shall connect directly with the main soil or waste pipe by using a Y-branch fitting.

71. No waste pipe from any refrigerator, ice box, cold storage or other receptacle in which foodstuffs are kept or stored shall be connected direct to any drain, soil or waste pipe, but such waste pipe shall discharge into an open water supply fixture or floor drain properly trapped and vented. Refrigerator wastes shall be separately trapped and so arranged as to permit of frequent flushing and be as short as possible. When two or more refrigerator waste pipes are connected together or to a stack they may be extended through the roof of premises for ventilation.

72. All vertical pipes and stacks shall be properly supported at their base and at intervals of not more than fifteen feet (15 ft.) All horizontal cast iron pipes shall be supported at intervals of not more than five feet (5 ft.) by iron or steel pipe hangers or on brick piers. All horizontal lead pipes shall have continuous supports throughout their entire length.

73. T's may be used on the vent system.

74. No double hub or double TY shall be used on horizontal runs, nor shall double hubs, straight crosses or TY with side branches be used on soil or waste pipes. Double hubs may be used in the main soil or ventilating pipe above the highest fixture or fresh air inlet.

Fixtures

75. All fixtures other than water-closets and urinals shall have strong metallic strainers or bars over the outlets to prevents obstruction of the waste pipes.

76. All fixtures shall be set free and open from all enclosing woodwork.

77. All fixtures must be constructed of satisfactory materials, metal lined wooden fixtures are prohibited.

78. All receptacles used for water-closets, urinals, or slop sinks shall be either vitrified earthenware, enamelled cast iron, or porcelain. If cast iron, they shall also be enamelled or coated on the outside with a non-absorbent and non-corrosive paint.

79. All water-closets and urinals shall be fitted with either siphon discharge, flush, pressure tank, connected by not less than one and one quarter inch diameter pipe, automatic flushing valve or flushometers of approved type, and shall have a flushing capacity of not less than three gallons for water-closets and not less than one gallon for urinals.

80. All water-closets and urinals shall be prvoided with flushing rims so constructed as to flush the entire interior surface of the bowl, and with such force as shall properly cleanse the surface.

81. Pan, valve, plunger, long hopper, washout hopper, or other closet having invisible seals or the walls of which are not thoroughly washed at each discharge of water are prohibited.

82. Frost proof closets may only be installed in compartments which have no direct connection with any building used for human habitation and only with approval of the Provincial Board.

83. No closet or other convenience which allows of the escape of gas or air from any of its parts or from the drain, soil or waste pipe connected with it, or which allows of any accumulation of filth in or about it, shall be fitted up or used.

Fittings

84. All fittings shall corrrespond in weight and quality with the pipes to which they are attached. Special fittings not provided for in these regulations but approved of by the Provincial Board of Health and the Plumbing Inspector may be used in any part of the system.

85. Fittings for wrought iron waste and vent pipes shall be galvanized, cast iron or malleable iron recessed and threaded fittings.

86. Fittings for waste or soil or refrigerator waste pipes for wrought iron or brass pipe shall be galvanized, cast iron, or brass, recessed and threaded drainage fittings, with smooth interior water way and thread tapped so as to give a uniform grade to branches of not less than one-quarter (¼) of an inch per foot.

87. No connection to any cast or wrought iron drain, soil, or waste pipe shall be made by boring or tapping the pipes or by a saddle, and no inverted joint shall be used below any fixture.

88. No pipe hub shall be used as an increaser. Increasing or reducing in size must be made with a proper fitting.

89. All changes in direction of horizontal pipes shall be made with full "Y" branches and one-sixth, one eighth or one-sixteenth bends. "TY" may be used on vertical soil and waste lines when it is im-

possible to use a "Y" branch, but are prohibited on horizontal lines.

90. One quarter bends may be used on the vent system, fresh air inlets, rain-water leaders or floor and yard drains.

91. Water-closets, urinal or slop sink connections betweeen earthenware or cast iron traps and lead bends shall be made by a cast brass flange, not less than 3/16 inches thick, fastened to the floor and soldered to the opening of the lead bend, and the joint made gas and water tight with a gasket or rubber or asbestos.

Traps

92. Every fixture shall be separately and effectually trapped by a self cleansing water sealed trap placed as close to the outlet of the fixture as possible, but in no case shall it be more than 12 inches from such outlet, except with the approval of proval of the Local Board of Health.

93. The size of trap for a given fixture shall never be less than the following inside diameter, and no slip or washer joint shall be placed on the sewer side of any trap or vent pipe:

Water-closet	3 inches
Slop sink	2 inches
Pedestal urinal	2 inches
Urinal	1½ inches
Laundry tub (1 to 3 considered one fixture)	1½ inches
Kitchen sink	1½ inches
Bath tub	1½ inches
Shower bath	2 inches
Sitz bath	1½ inches
Drinking Fountain	1¼ inches
Dental cuspidor	1¼ inches
Wash basin	1¼ inches
Pantry	1½ inches

All 1¼ in. traps shall be of deep seal patterns.

94. Non-siphon traps of patterns approved by Provincial Board of Health may be used without a vent pipe upon the approval of the Local Boart of Health.

95. There shall only be one trap under a water closet and that immediately beneath same, viz., that which constitutes part of the water-closet bowl.

96. No fixture shall drain through more than one trap, main trap on house drain excepted.

97. Traps shall not be less than the size of the waste to which they are attached and equal in quality and thickness.

98. All traps, where practical, shall have water-tight trap screws, except earthenware traps, and be so located as to be easily accessible.

99. Vent horns on earthenware traps are prohibited, except for replacement of old fixture of that type (i.e., repairs).

Vents

100. The trap of every fixture shall be protected from siphonage and back pressure by an anti-siphon or vent pipe which shall, where possible, be constructed on the continuous waste and vent principle; the inlet of such traps shall not be more than 14 inches from such continuous waste and vent, and where such is impracticable, the vent shall be taken off the waste pipe at least 3 inches from the crown of the trap, and shall be connected to branch vent at least 6 inches above high water line of fixture when full.

101. The diameters of vent pipes shall not be less than two inches for main vents through less than seven stories; three inches for water-closets on more than three floors, and for other fixtures in more than seven stories. All vent pipes shall be increased one size (2 inches) in diameter before passing through the roof.

102. All main vents shall connect at their base with the main soil or waste pipe below the lowest fixture in such a manner as to prevent the accumulation of rust scale and shall be extended through the roof and finished as per section, or may reconnect to the main soil pipe at a point at least 6 inches above the highest fixture connected therewith.

103. No vent pipe shall be used as a soil or waste pipe.

104. No vent pipe shall be allowed to connect to another vent pipe below a point at least 6 inches above the fixture for which it is used.

105. Vent pipes may be one size less than the size of the trap which they serve and in no case shall be less than 1¼ inches.

106. Vent pipes for water-closets shall be connected to the highest point of the bend or of the hub to which the bend connects, and must be at least 2 inches in diameter. Closet vents into which other vents are connected shall be 3 inches in diameter.

107. No wrought iron vent pipe will be allowed below the top of cellar floor or to be buried under the earth.

108. All vent pipes shall be run as direct as practicable and be so graded and connected that any condensation will drain back to the waste pipe. All offsets shall, where practicable, be made at an angle of forty-five degrees.

Joints.

109. All joints between lead pipes and between lead and brass pipes, traps, ferrules or solder nipples shall be wiped joints. In no case shall bolt joints be allowed. All joints between iron and lead shall be made with brass wiped to the lead and caulked or screwed into the iron.

110. All joints on cast iron pipes shall be made with picked oakum and molten lead run full, thoroughly caulked, and shall be made gas and water tight. The joint shall have a depth of lead not less than 1½ inches.

111. All joints on wrought iron pipes shall be screwed joints made up with red lead, paint or other suitable substance, and be made gas and water-tight, and any burr formed in cutting shall be carefully reamed out.

112. All connections of lead pipe with cast iron shall be made with brass ferrules having inside diameters not less than the outside diameter of the lead pipe to which they are to be attached.

113. No cement joints nor connections between iron and cement or tile pipe or brick drains shall be made within any building.

Water Supply Pipes, Taps and Cocks

114. All water supply pipe for a plumbing system shall be galvanized wrought iron, lead or brass, with galvanized malleable, or cast iron or brass water fittings.

115. Every tap or cock on a supply pipe shall be capable of resisting a pressure of at least three hundred pounds to the square inch.

116. Every tap or cock shall be made of gun metal or hard brass, or of other not less suitable metal or alloy, and shall be of sufficient strength and weight in every part.

117. In every screw-down tap a cock having a washer of soft material; the valve seating shall be raised.

118. Every ball cock shall be efficient; the value shall be provided with a washer of good rubber or other suitable material; the ball shall be of glass or copper; if of copper it shall be not less than .022 of an inch in thickness when finished bright; the lever shall be of copper or other suitable material or alloy; the size of the orifice, the length and strength of the lever and the size of the ball shall be properly proportioned to one another, and shall be adjusted to the pressure to which the ballcock is liable to be subjected.

119. The name or registered trade mark of the maker shall be stamped in all fittings. The word "Best" is not to be used.

120. There shall be a shut-off and drip on the main supply inside the foundation wall.

Meters.

121. Meters when inserted on water service connections may be installed without check valves.

Hot Water Storage Tanks and Kitchen Boilers.

122. Relief valves shall be inserted on the top of all hot water storage tanks and kitchen boilers in every instance if a check valve has been inserted in the water service connection or supply pipe.

Rain Leaders and Sub-surface Drains.

123. Every building shall be kept provided with proper metallic gutters and rain leaders for conducting water from all roofs in such manner as shall protect the walls and foundations from injury. In no case shall the water from any rain leader be allowed to flow upon the sidewalk or adjoining property. If there be no sewer in the street upon which the building fronts, then the water from said leaders may be conducted by proper pipes laid below the surface of sidewalk to the street gutter, or may be conducted by cast iron pipe to a leaching cesspool located at least 26 feet from any building. No plumbing fixtures shall discharge into the said leaching cesspool.

124. Inside leaders must be made of cast iron or wrought iron with roof connections made gas and water tight by means of a heavy lead or copper-drawn tubing to a brass ferrule or nipple caulked or screwed into the pipe.

125. Outside leaders may be made of sheet metal. Connections with the house drain shall be by means of a cast iron pipe extending vertically not less than two feet above the grade level.

126. Rain water leaders must not be used as soil, waste or vent pipes, nor shall any such pipe be used as a leader.

127. Roof leaders and surface and ground water drains shall not be connected to house sewers which discharge into public sewers intended for the carriage of sanitary sewage only, except when special application, made in advance, is approved by the Local Board of Health; a sub-surface drain for ground water only built around or immediately adjacent to building foundation walls, may be connected direct to any public sewer, or to the house connection at such point, and in such manner as the Local Board of Health may designate.

Leaders and Cellar Drains

128. Rain water leaders when connected with house drains shall be suitably trapped. Whenever a surface drain is installed in a cellar or basement, it shall be provided with a deep seal trap. Drain pipes from cellars and basements, liable to back-flow from the sewer, shall be supplied with back-water valves. No back-water valve shall be so placed as to interfere with the ventilation, the plumbing or drainage system.

Drinking Fountains

129. Drinking fountains manufactured for this purpose only, placed on walls and pedestals may be directly connected to a rain water leader on the building side of a trap without requiring a separate trap or vent. But if connected to a house drain or soil pipe, they shall be considered a plumbing fixture and shall be properly trapped and vented.

Watering Troughs

130. Watering troughs may be provided with float valves to prevent overflowing, and all troughs shall be kept in good working order.

Chemical Laboratories

131. Fixtures and waste pipes in chemical and other special laboratories shall be installed in accordance with plans approvby the Local Board of Health.

Steam Exhaust, Etc.

132. No steam or vapour or water of a temperature of over one hundred and thirty degrees Fahrenheit shall be discharged from any premises into a sewer, drain, or catch basin, nor shall any matter or thing be discharged into any sewer which may tend to cause an obstruction of the public sewer, or a nuisance or a deposit therein or an injury thereto.

133. Boiler installations up to and less than one hundred horse-power shall be con-

nected to blow-off tanks not less than 24 inches x 30 inches, installation between one hundred and three hundred horse-power not less than 30 inches x 36 inches, and larger installations not less than 48 inches x 60 inches. The location of and the connections to said blow-off tank shall be subject to the approval of the Local Board of Health.

134. No steam exhaust or steam drip, unless it be provided with a cooling tank of a capacity approved by the Local Board of Health, or unless it be connected with a blow-off tank, shall connect with any drain leading to the sewer. Every blow-off tank shall be supplied with a vapour pipe not less than two inches in diameter, which shall be carried above the roof and above the highest windows of the building.

135. The Local Board of Health may require such additional means of cooling the blow-off tanks by the injection of cold water passing from the blow-off tank so that it shall not exceed one hundred and thirty degrees Fahrenheit.

Grease and Other Special Traps

136. Every building from which, in the opinion of either the Local Board of Health grease may be discharged in such quantities as to clog or injure the sewer, shall be provided with a satisfactory grease trap.

137. Every building in which gasoline, naphtha, or other inflammable compounds are used for business purposes, shall be provided with a special trapped receiver, satisfactory to the Local Board of Health, so designed as to prevent the passage of such material into the sewer, and ventilated with the rain water pipe from the roof.

138. The waste pipe of every wash rack for vehicles shall be provided with a sand box of sufficient capacity.

139. The drainage of stable fixtures shall, as far as practical, be constructed according to the plans attached as Schedule "A" and shall be subject to the approval of the Local Board of Health.

Water-Closet and Usual Compartments

140. No water-closet or urinal shall be placed in any cellar or basement unless such cellar or basement has a cement floor or other material impervious to moisture, and is well lighted with natural and artificial light, and has easy means of access, and all such closets or urinals shall be of the flush drive and non-soil type.

141. The floors of all water-closets and urinals in office buildings, railway stations, public buildings, hotels and schools shall be constructed of materials impervious to moisture, and laid with a grade not less than one in fifty to central floor drains, conveniently located.

142. All water-closets, urinals, urinals and slop sinks when in a separate compartment must be supplied with a local ventilation pipe having an area equal to a pipe three inches in diameter and connected to a heated flue. The area of main or common flues shall be increased proportionately when a number of local vent pipes combine.

Septic Tanks

143. Every septic tank in connection with a building shall be constructed of good brick and cement or of concrete, and be of a capacity of not less than fifty cubic feet. The walls of septic tanks when constructed of bricks must be not less than nine inches thick, and if of 1, 2, 4, concrete not less than six inches thick. The bottom of septic tanks shall be of concrete not less than six inches thick. The interior surface of brick septic tanks shall be finished with a coating of Portland cement mortar.

144. Septic tanks shall be properly covered over and provided with adequate means of access and of ventilation.

145. The ventilation may be means of a connection to the distributing tile and to the main vent pipe.

146. The overflow from septic tanks shall be disposed of through field tile not less than three (3) inches in diameter. The number of lineal feet of tile to be laid shall not be less than twenty-five (25) feet per person in the family or less than one hundred and thirty (130) feet per house. In light sandy soils the overflow may be led to a leaching cesspool not less than ten (10) feet in diameter, lined with dry brick or stone and not less than ten feet deep.

147. No tile disposal system or leaching cesspool shall be placed within one hundred and fifty (150) feet of the source of any water supply, whether the same be on the same or adjoining property.

Inspection and Tests

148. Pipes or other fixtures shall not be covered or concealed from view until approved by the Inspector, who shall cause the same to be examined or reported upon within two working days after notice that they are ready for inspection.

149. Plumbing shall not be used unless, when roughed in, the wastes, vents, and back air pipes and traps are tested in the presence of an inspector.

150. The material and labor for the tests shall be furnished by the plumber.

151. The tests may be made separately as follows:

(a) the house drain, including all piping to the height of five (5) feet above the highest point on the house drain, except the exposed connnections to fixtures,

(b) the soil, waste, vent, inside rain leader, and drainage pipes which would be covered up before building is enclosed or ready for completion,

(c) all other work known as rough work between house drain connection to points above the finished floors and beyond the finished faces of walls and partitions.

and the tests required for (a) and (b) or (b) and (c) or (a), (b) and (c) may be combined.

152. When the drain or any part of the plumbing system is to be tested separately there shall be a head of water at five (5) feet above all parts of the work so tested, and special provision must be made for including all points and connections in at least one test.

153. The use of wooden plugs in making tests is prohibited.

154. The Inspector of plumbing may require either a water or smoke test, which shall be made by the master plumber. In all cases the Inspector shall designate the points at which pressure is to be relieved or drawn off.

155. The results of every inspection shall be recorded in the office of the Local Board of Health.

156. The water test shall be applied by closing the opening at the outlet end of the house drain and all other openings in the piping with proper testing plugs to the highest opening, and completely filling the system with water; the water column to be left standing at least three hours.

157. A final smoke test shall be made to determine the sanitary condition of the drainage or plumbing system of all buildings, and where there is reason to believe that the plumbing system has become dangerous or defective on account of settlement of the building or by explosion, accident or any other cause.

158. Smoke test: The smoke machine shall be connected to any suitable opening or outlet and when the system is completely filled with dense pungent smoke; and the openings emit smoke, they shall be closed and an air pressure equivalent to one and one-half inch (1½") water column shall be applied and left standing at least ten (10) minutes. If there is no leakage or forcing of trap seals, indicated by the fluctuation of the drumfloat, the system shall be deemed air or gas tight. But nothing in this section shall be so construed as to prevent the removal of any clean-out or unsealing of trap, to ascertain if the smoke has reached all parts of the system.

159. If test shows defects the plumber shall be given two days notice to make good the defects. Failure on the part of the plumber to make good all defects shall make him liable to the penalties prescribed by this by-law.

160. Tests shall not be required after the repairing or replacing of any old fixture, tap or cock by a new one (to be used for the same purpose), forcing out stoppages, repairing leaks, or relieving frozen pipes and fittings; but such repairs or alterations shall not be construed to include cases where new vertical or horizontal lines of soil, waste, vent or interior rain leaders are used or their relative locations changed. Provided, in a building condemned by the Health Officer because of unsanitary conditions of the house drainage or plumbing, no such drainage or plumbing shall be considered as coming under the head of repairs, but all such house drainage or plumbing shall be tested as in the case of new buildings.

Maintenance

161. The plumbing and drainage system of all premises shall be maintained by the owner at all times in good working order in conformity with these regulations and to the satisfaction of the Local Board of Health.

Future Connections

162. Where soil or waste pipes are placed in any premises for future use, the necessary ventilation pipes shall also be put in at the same time and connected to wastes leaving no dead ends. The whole shall be tested and inspected as if the same were for immediate use, and all openings not in use shall be effectively plugged.

Material Other Than Specified

163. The use of any other material in, or method of assembling, or installation of any part of a drainage or plumbing system shall not be precluded or prohibited which has the approval of the Provincial Board of Health, the trade and other controlling body.

Application For Service Connections to Water Department

164. Every application for connection with the system of mains, or service pipes attached thereto, or to repair a service pipe, must state upon the blank form furnished for the purpose (similar to schedule "A") the number and exact location of the building, premises, or establishment, the number of the block and plan, the number of stories and length of frontage, the purpose for which the water is to be used and the time at which the tap will be required to be made by the Water Department.

The application must be signed by the owner of the property or his duly authorized agent.

Temporary Connections Before Laying of Water Mains

165. No permit shall be issued to a registered plumber to lay a temporary water service-pipe to supply a building, lot, premises, or establishment on any street in which there was no water main, until the owner or lawful agent shall sign an agreement that, immediately after a main has been laid, temporary service-pipe shall be promptly disconnected and connected directly on the main, in accordance with the requirements of the plumbing regulations in force at the time of connecting with the water main. In case of any failure or delay on the part of the owner or lawful agent, after due notice has been given by the Municipality to fully and promptly comply with the agreement on which a permit was issued for laying a temporary water service-pipe, the Municipality may order the supply of water to be cut off from the building, lot, premises, or establishment, and it shall not be turned on until the regulation herein prescribed has been complied with.

166. All service connections and service-pipes from the mains to building line, including the stop-cock or valve and box for same, shall be put in only by properly authorized employees of the water department, acting under the direction of the superintendent of said department.

Tapping Water Mains

167. No water mains shall be tapped un-

der any circumstances except by the regular tapper of the Water Department.

168. Hereafter, under no circumstances, shall any water main larger than 12 inches in diameter be permitted to be tapped except by special written permission of the engineer. No tap shall be nearer than 6 inches to a bell of the water main, and no two taps shall be nearer together than two feet.

169. In no case may a water service-pipe from the tap in the main to the building line be of less dimension than three-fourths of an inch, nor shall the stop-cock or the service-pipe be of less dimension than the supply pipe.

170. A water service-pipe shall not be laid directly above a house sewer or within eighteen inches thereof, measured horizontally.

171. Two service-pipes shall be permitted in one trench only when a sheet asphalt block pavement or macadam roadway must be cut: otherwise, a separate trench shall be dug for each pipe. In no case shall more than two service-pipes be placed in one trench.

172. No water service-pipe shall be laid, unless the same be provided with a stop-cock or gate valve of material and construction approved by the engineer and each valve shall be provided with an extension stop-cock of an approved pattern with a non-detachable cover. Every stop-cock box provided for a above shall have cast upon its cover the word "WATER."

173. All stop-cocks for water service-pipes shall be furnished by the Water Department.

174. The stop-cock box shall be placed not less than one (1) foot nor more than two (2) feet inside the sidewalk; the stop-cock box shall be placed in such location as may be readily located. In every case a stop-cock box shall be placed in front of and opposite the premises being served, and in alleys the stop-cock box shall be placed outside of and as near as posssible to the wall of the building served; Provided, that if the building sets back from the alley line the stop-cock shall be placed where directed between the wall of the building and the alley line.

175. When any portion of the service-pipe located in the public footway and including the stop-cock and box requires repairs, these appurtenances shall be removed to the location prescribed.

176. Every water service-pipe shall be laid at least five feet below the surface of the ground and must have a slack of six inches at the main to prevent undue strain or injury to the tap by settling of the trench.

178. If it is desired to pass a service-pipe from one point to another without excavating a trench, it shall be allowed to be done only when a channel is made by a separate instrument, through which the service-pipe can be passed without strain, or when a large pipe is driven and left in place, and through this the service pipe is passed.

179. Neither of the methods proposed above shall be applied in any street in which an underground conduit exists, nor shall these methods be employed in any street provided with a granite curb of permanent roadway surface except upon written approval of the Engineer.

Independent Service

180. The water service-pipe for any building, lot, premises, or establishment shall not be made over or through any building, lot, premises, or establishment; Provided, that this regulation shall not prevent a dwelling and a stable upon the same lot from being supplied by the same service-pipe: but if the stable be converted wholly or partially into a dwelling or place of business, a separate service-pipe, with independent stop-cock and box, must be made to supply it.

181. It shall not be lawful to connect a power pump high pressure boiler or other apparatus subject to considerable back pressure directly within a service-pipe or street main for supply water to a steam boiler, tank or receptacle in a building, premises or establishment, or to maintain such connection and all such apparatus shall be fed from a tank or receptacle.

*Material of Service Pipes

*Lead pipe is the most satisfactory material for service pipe and should be used as much as possible. Settling of the main has less effect on lead pipe than any other. The rigid connections commonly used with galvanized wrought iron pipe are the cause of a great deal of water waste. Lead pipe should be used on the streets liable to be cut up for conduits or underground structures.

182. The service-pipe between the ferrule or corporation cock at the main, and the building, shall be of lead or galvanized wrought iron free from scale, in the case of all pipe having one inch water way or less; where the pipe is over one inch and not exceeding two and a half inch water way, it shall be of lead or galvanized wrought iron free from scale; all pipe over two and a half inches water way shall be of cast iron.

183. In the building lead, galvanized wrought iron, or brass pipe of standard wrought iron pipe sizes shall be used.

184. On all lead pipe wipe joints or couplings approved by the Water Departent shall be used, but no couplings shall be service pipe.

Standard Weights of Lead Pipe

185. The following weights per lineal foot shall be the standard for lead service pipe, to wit:

Lead pipe ½ inch bore, 6 lbs. per lineal yd.
Lead pipe ⅝ inch bore, 8 lbs. per lineal yd.
Lead pipe ¾ inch bore, 10 lbs. per lineal yd.
Lead pipe 1 inch bore, 13 lbs. per lineal yd.

186. All water supply pipe shall be laid with due regard to danger from freezing and must not be placed back of plaster on outside walls of building, and shall be properly laid and graded with a fall to a stop and waste cock placed under floor in the cellar or other convenient place, where they can be entirely drained off.

Permits

187. Permits may be issued without charge for alterations and repairs of water service-pipes inside the building line. Any plumber who shall take advantage of a permit of this class to do unauthorized work shall have his license revoked and shall be prosecuted for violation of these regulations.

Penalties

188. Any person or persons who shall fail to comply with any of the provisions of this Act regarding the procuring of a license or certificate to engage in or work at business of plumbing or house drainage, shall be liable to a fine of not less than $10.00 (ten dollars) nor exceeding $50.00 (fifty dollars) for each and every day he or they may engage in such work without first having obtained said certificate or license, any any person or persons who shall violate any of the rules or requirements set forth in these regulations regarding the construction or alteration of any plumbing or house drainage, shall be liable for every such offence to a fine of not less than $10.00 (ten dollars) or more than $100.00 (one hundred dollars) or to imprisonment for thirty days, and on conviction, if a master plumber, in addition to the penalties herein described he may forfeit any certificate or registration he may hold with the Board of Health.

GAS FITTING REGULATIONS

Gas Fitting

189. Under these regulations gas fitting shall be construed to be as follows: The erection or construction of a piping system through which is conveyed or intended to be conveyed, gas for power, heating or illuminating purposes, including the connection therewith of gas fixtures, ranges, stoves, water heaters, and gas engines and all their attachments and appurtenances, and the maintenance in good and safe condition of said system and the making of the necessary repairs and changes.

Outside Stop-Cocks

190. Outside stop-cocks shall be full way brass cocks, of a pattern approved by the County, Town or City Engineer of the municipality concerned, and shall be located as prescribed for water stop-cocks. Every outside stop-cock shall be provided with an extension stop-cock box similar to the water stop-cock boxes, with the word "GAS" cast upon the cover. If stop-cocks are located otherwise than prescribed above, or the boxes need adjustment to grade, such moving and adjustment shall be at the expense of the gas light company responsible for their maintenance.

191. Outside stop-cocks shall be required for all stores with cellars, for all large buildings of a public character, and for other buildings having a frontage of fifty (50) feet or more on one or more streets.

Inside Stop-Cocks

192. There shall be a heavy, main, full weight cock on every service pipe close to the inside of the foundation wall, and in case of two or more meters supplied from the one service pipe, there shall be an additional straightway cock at the inlet side of each meter. When service pipes are over two inches, brass seated valves shall be used. Brass soldered nipples shall be used on all lead meter connections.

Separate Gas Service Pipe

193. Every building must have an independent gas service of size prescribed. The service pipe shall be run, and both connections with the meter made, by the gas company. Where a main runs through a masonry foundation wall a sleeve must be provided, the gas pipe resting on the bottom of the sleeve, with a clearance of one half-inch on top.

Location of Meters

194. Meters placed in cellars shall be set on the front wall whenever practicable, four (4) feet from the cellar floor. In no case shall be the meter be set in a vestibule or above the door of same, nor in any cellar, hallway or room closer to any furnace, open grate or range, than six (6) feet, nor within six (6) feet of any electric switchboard or other electrical appliance; nor in any closed closet, under stairways, in any stationary box, nor under any show window of a store, or in a coal vault or ash vault.

Service Pipe Extensions

195. All extensions of service pipes inside of building shall be exposed from the outside walls of the buildings to the meters.

Material of Gas Pipe

196. The pipe shall be of the best quality wrought iron or steel pipe, with malleable iron fittings, and joints shall be made with white lead, preferably applied to the male threads. No gas fitter's cement shall be used except at fixture joints.

Old Gas Pipe, When Allowed

197. No second-hand pipe shall be used, except, that when a building is undergoing reconstruction or repairs, such old gas pipe as is taken out and found to be in good condition may re re-run in that building.

Fittings

198. All fittings (except stop-cock and valves) shall be of malleable iron. All bends or angles in piping must be made with fittings. The bending of gas pipe will not be permitted.

Table of Sizes For Gas Pipe

199. The size of gas pipe shall not be less, nor the length greater, for the number of burners stated, than enumerated in the following table, except, that if the number

Continued on page 30.

EDITORIAL COMMENT

OUTLOOK IS BRIGHT

AFTER having come through twelve of the most trying months, in many respects, in the history of the Dominion, the people of Canada are commencing a New Year of exceptional promise. When one contrasts the busy, prosperous, happy Canadian public, and conditions that exist in Canada, with the people of many other lands, one realizes to a small extent just what Canada has missed in the way of real troubles. With resources that are, perhaps, richer than those of any country on the globe, with a sturdy and hard-working population, and with ample money to finance development projects, Canada seems to be merely at the commencement of a period of prosperity that may extend over many years. Leading financiers, not only of this country, but of others also, see for Canada in the coming years, development that will mean much. The merchants of the Dominion will, of course, share in this and everywhere one sees evidences that they are preparing for larger business. No business men are looking forward with more optimism than the men in the plumbing trade. In 1919 they enjoyed a full measure of prosperity. Many of them have just ended the most prosperous year in their history, and but for the fact that they could not get the merchandise they needed it would have been even more so. All out through the country districts, and it should be remembered that Canada is essentially a farming country, one hears the same story: "We need more room. We know we can do more business if we add this line and that line. We hope shortly to build a larger store." This has been repeated so often to the writer in the past few months that there is only one conclusion and that is that 1920 is going to see sanitary engineers expanding their trade in all directions.

A COMPLICATED SITUATION

"THE business world at the beginning of 1920 finds itself confronted with fifty new political divisions with newly defined areas, new ethnic groupings of population, and therefore with new industrial and commercial activities, new forms of Government, new political managers and law makers, new forms of currency, and new relations to world commerce, industry and finance.

"Thirty of these new political divisions have declared themselves as republics; certain others as kingdoms or under the direct control of local rulers; others, classified as 'colonies, protectorates, and dependencies,' have passed under new political control; and still others are awaiting anxiously the determination as to the political power which is to exercise the 'mandate' under which their political and industrial future is to be developed.

"Of these fifty new divisions, thirty occupy that formerly great industrial and commercial area, Central Europe, and the remainder are scattered over Africa, Asia and the islands of the Pacific. They aggregate one-fifth of the land area and have one-fifth of the population of the globe, and their imports and exports formed one-fifth of the total international trade immediately preceding the war.

"Twenty of these new republics have been established upon a territory formerly that of a single empire, Russia; a dozen others have been created from sections of three other empires, Germany, Austria-Hungary and Turkey; and the remainder, which is practically a score in number, represents pre-war colonies, protectorates or dependencies of Germany and Turkey respectively.

"Most of these new political divisions lie within the interior of Europe, separated by long distances from the ocean; their railroads disorganized; their currency in a state of extreme disorder; their population unaccustomed to the new form of Government; their legislators inexperienced in national and international affairs of Government.

"What will the world, the industrial, the financial, and the commercial world, do with them and for them?

"It is easier to ask this question than to answer it. It cannot now be answered, in fact, with anything like accuracy or even a safe prediction."

MAY MAKE IRON AT THE COAST

CONSIDERABLE interest is being shown at the present time in the possibility of iron and steel industry being developed in British Columbia. At the recent meeting of the Canadian Mining Institute the question was discussed at length and particular attention was given to remarks of Dean Roberts, of the University of Washington, who gave it as his opinion that it is only a question of a very short time before iron will be produced on the coast. No less than one-third of the exports of British Columbia this year, he pointed out, are minerals.

He strongly urged merchants and business men to co-operate in every way in the development of the Province's resources, as it has an abundance of fuel, a large amount of potential cheap hydro-electric power and inexhaustible supplies of minerals. Lead and copper, he stated, are being produced in ever-increasing quantities and conditions are fast developing which point to iron smelting being engaged in. In connection with Dean Roberts' remarks, it is interesting to note that a representative of one of the largest British firms has been on the coast for some weeks and is reported to be investigating closely ore supplies and conditions generally.

A WORD OF ENCOURAGEMENT

DISCUSSING the problem of apprentices in the hardware business a writer in a contemporary says: "My work invariably drew a comment from my employer which was a stimulant for me to try and do better all the time. To all employers I would say: 'Don't forget the word of encouragement.'" There is a great deal of truth in this. Very often the busy merchant immersed in the thousand and one details of carrying on his business loses sight altogether of the juniors of the firm and the work they are doing. If a boy or young man is trying his best to make good, a word of appreciation, even if it only comes occasionally, is a tremendous incentive. He not only knows that what he has done has been noted and appreciated, but it will spur him on to do better work. The few seconds that it will take to make a kindly comment on the young man's work and to say a few words of commendation are, if the head only realized it, worth more to him than any other time in his whole busy day.

BIG DEVELOPMENTS COMING

IT is said that straws show which way the wind blows and an indication of what business men are looking for in regard to the future of Canadian trade may be seen in the unusually large lists of incorporations of new companies which have been issued with great regularity of late. In addition to the new companies there is a long list of old-established firms who are asking permission to double or treble their capital in order to provide for plant extensions, installation of additional machinery or something else designed to take care of more business. All these are certainly very, very healthy signs. There is another one also and that is the great number of American firms who are locating branches at various points in Canada. Some of these firms are capitalized at many millions. It may be accepted as a fact that Canadian business men do not put their money into new companies and new factories just for the fun of investing. They see business ahead and they are preparing for it. The same is true of the American firms coming to this country. It seems to be the general opinion in the commercial world that Canada is just commencing a period of development and industrial expansion that will easily eclipse anything that has occurred in the past. No country in the world is richer in natural resources and in undeveloped farming territory and the eyes of hundreds of thousands of people all over the United States, England and the continent of Europe are on Canada. Sooner or later immigration is bound to be resumed and every new comer will be a customer for goods of one kind or another. In addition to what has been mentioned is the steadily growing export trade which Canada is building up. All of these things are factors in and account in one way or another for the new factories, the extensions and so on.

MEANS MILLIONS FOR FARMERS

THE action of the United States Grain Corporation in lifting the important embargo on wheat means millions of dollars for Canadian farmers. While the States is only after No. 1 and No. 2 Northern hard wheat the lifting of the embargo will create a much wider field for the Ontario and Quebec product, and naturally higher prices. It is estimated that at least 5,000,000 bushels of wheat could be exported to the States, and as the prices over there are anywhere from 30 to 70 cents per bushel higher than in Canada, despite the fact that there is a fixed price, it means that the Canadians will benefit to an enormous amount. It also means that less wheat and more of the other grains will be used as feed. This will likely create firmer markets for oats and barley.

Consumers will have to pay a considerable sum more for bread. Already there has been a feeling created amongst city folk that an export embargo should be put on wheat, but as the Canada Wheat Board, through which all grain is sold, was brought into existence for the sole purpose of "getting the best world prices for the farmers" it is hardly likely that there will be any attempt on the part of the Government to make a change in the present programme.

—it's leap-year, but

Three hundred and sixty-six days

in 1920 makes it leap year—a year, so they say, when it is the privilege of the maiden fair to ask for the heart and hand of her choice from among her male friends.

At one time

this may have been the custom in some countries, who knows, it may be the custom here to-day, but the victims being game enough to keep their mouths shut, do not let the rest of us know what really did happen.

To get down to brass tacks

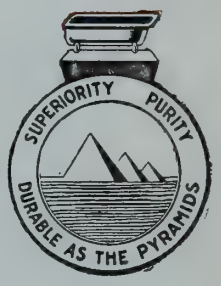
Do you realize how many of the plumbers are playing at leap year all the time? Do you ever stop to think how often you *wait to be asked* before you rise to the occasion and go after the business which is going right by your door?

THE "ST. LAWRENCE" COMBINATION

don't wait to be asked

This is not leap-year in the plumbing business

it's the year of "Get-up-and-go-after-it." Don't wait until Madame Housewife calls or rings up to have you estimate on the plumbing in her new home. Dig around and find out those who have the "new home" bug (it's an epidemic), and get on the job early with your



Port Hope Sanitary Plumbing Ware

"For the Home" Catalog

This attractive catalog is fully illustrated with half-tone plates of our leading domestic lines, full descriptions, etc.

If you desire you can practically make this 69-page booklet along with our "For the Factory" Catalog your entire show room. You will find it just as easy to sell from—five complete bathrooms nicely illustrated, plates galore of baths in every known style, lavatories, fountains, sinks, laundry trays, sink and tray combinations, closet combinations, etc., etc. Everything needed in the home and factory.

Your whole show room may be carried in your pocket, ready at all times to take an order from.

Don't wait to be asked, but go and get your share of the big plumbing business which is in prospect for the New Year.

Here's luck to the man who is a "go-getter."

Port Hope Sanitary Mfg. Company, Limited

Factory:
PORT HOPE, ONTARIO
TORONTO SHOW ROOMS
119 King St. East

WINNIPEG OFFICE
405 Tribune Bldg.
HALIFAX OFFICE: McCurdy Building, Hollis Street

Head Office:
ROYAL BANK BUILDING, TORONTO
MONTREAL SHOWROOM
234 Beaver Hall Hill

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

Business Changes

Toronto.—F. M. Cronkwright, plumber, has sold out to A. Litchman.

Blyth, Ont.—The tinsmithing and plumbing business conducted by J. H. Leith in connection with the hardware store of Moore & Son, who were burned out recently, has been purchased by J. G. McLaughlin.

Trade Notes

Lapointe & Cote, Ltd., Quebec, have gone into liquidation.

The plumbing firm of A. Small, Montreal, has been dissolved and is being continued by Arthur Small.

Frank O. Wells, president of the Greenfield Tap and Die Corporation, and one of the prominent figures in the screw thread industry in the United States, has sold his entire holdings to Frederick H. Payne, vice-president. Mr. Wells retires as president and member of the board of directors, and Mr. Payne has been elected president in his place. F. G. Echols, vice-president and general manager, has been elected a director of the corporation to fill the vacancy caused by the resignation of Mr. Wells, but Mr. Wells will remain with the corporation in an advisory capacity.

Personal

Joseph Bell, traveller for Warden King, Limited, was re-elected as school trustee for Ward 5 in the municipal elections on Monday.

David Eggett, of Eggett & Co., sanitary and heating engineers, London, Ont., was elected as a member of the Board of Education in the municipal elections on Monday.

Incorporations

The Wilkins Automatic Regulator Co., Ltd., capital $100,000, head office Toronto, plans to manufacture and deal in automatic pressure and water regulators.

Hamilton Plumbers Elect New Officers

Hamilton, Ont.—At the annual meeting of the Plumbers' and Steamfitters' Union, the following officers were elected for the coming year: President, A. Packer; vice-president, H. Fischer; recording secretary, G. A. Smith; financial secretary and business agent, Alex. Bonner; treasurer, A. L. Smith. Delegates to the Hamilton Building Trades Council will be elected at the next meeting.

Frank R. Maxwell Elected Alderman

It's Alderman Frank R. Maxwell now. In Thursday's elections in Toronto, the President of the Dominion Association of Domestic Sanitary and Heating Engineers was honored by being returned as representative for Ward 8.

It was Ald. Maxwell's first attempt in a civic campaign, and he went at it with the energy that is characteristic of him. His efforts were not only successful, but he finished in second place, and was less than 100 votes behind the man who headed the poll.

IT'S ALD. MAXWELL NOW

The popular president of the Dominion Association made a great run in the race for aldermanic honors in Toronto.

Ald. Maxwell, in running for public office, is simply following out what he has repeatedly maintained at gatherings of sanitary and heating engineers, that is, that it is the duty of every man in the trade to take his part in civic life and do what he can, and also do all that he can, all the time, in the interests of the trade in which he is engaged. The men in the trade in Toronto are looking for Ald. Maxwell to stir things up in civic life, just as he has in organization work in the sanitary and heating trade.

Officers Installed By the "Ender" Clubs

The installation of the officers recently elected by the Ender Clubs of Toronto was held in the rooms of the Canadian Order of Foresters' Hall on Monday evening and was in charge of President George Clapperton. The officers installed are:

West Enders—President, R. A. Pratt; vice-president, Samuel Adamson; secretary-treasurer, D. E. Norwich; executive committee, W. F. Clinton, C. F. Kelly, Gordon Lynch; auditors, Walter Hill, Addis Byrne; consideration board, Harry Griffiths, Thos. E. Ryan, and President R. A. Pratt.

North Enders.—The North Enders' officers were all returned by acclamation and are as follows: President, Roy E. Belyea; vice-president, W. J. Hall; secretary-treasurer, Wm. G. Carroll; auditors, Theo. Prince, Joseph McCann; executive committee, E. B. Smyth, C. H. Chapman, and W. G. Cameron; consideration board, Roy E. Belyea, H. B. Waterman, and Theo. Prince.

East Enders.—President, Harry Weinraub (re-elected by acclamation); vice-president, Wm. Adams; secretary-treasurer, John Preston; assistant secretary, H. J. Hillier; executive committee, Jas. R. Brown, Jos. Foster, and Thos. Rodwell; auditors, W. A. Lord, Harry Winkle; consideration board, Fred H. Gentle and Thos. Swanston, and President Harry Weinraub.

Ball and "At Home" To Be Held January 30

The first Ball and "At-Home" to be held since the war by the members of the Toronto Society of Domestic Sanitary and Heating Engineers is scheduled for January 30. It will be held in the Foresters' Hall, and arrangements are being made to make the event a most enjoyable affair.

TENDERS

H. F. McNaughten, secretary of the Public Works, Dept., Toronto, will receive tenders until January 6 for heating, plumbing and electric wiring of addition to Nurses' Home at the Ontario Hospital at Kingston.

Plans are being prepared at Lucknow, Ont., for the erection of a municipal rest room to cost $10,000.

Tenders will be called shortly for the erection of a school at Mallorytown for the Consolidated School Board.

Prices on plumbing and heating are wanted in connection with the erection of a new church at Holdfast, Sask., for the Catholic congregation. Father B. Ueberberg, chairman of Building Committee.

Plans are being prepared at Ottawa for new collegiate to cost $40,000, for the Collegiate Institute Board.

Plumbing and heating tenders are open for $10,000 addition to the Tillsonburg Baptist Church. W. H. Jackson, chairman of committee.

Plans are to be prepared for a large new warehouse at Montreal for the McClary Mfg. Co. of London, Ont.

Plumbing and heating to be let in connection with new $25,000 church at Walkerville, Ont., for St. Mary's Anglican Church.

Henry Birks & Sons, of Montreal, are having plans prepared for a new building to cost $250,000.

Plans are being prepared by the Burroughs Adding Machine Co., of Detroit, for a new Canadian factory to be erected at Windsor at a cost of $250,000.

Heating and plumbing to be let in connection with new $300,000 theatre at Vancouver, B.C., for Allen's Theatres, Toronto.

Plans are to be prepared for new bank at Westmount, Quebec, for the Merchants' Bank of Canada.

CONTRACTS AWARDED

Massicotte et Freres have plumbing contract for new store for Joseph Lord of Cap de la Madeleine, Quebec.

Hickey & Aubut, Montreal, have plumbing contract for new store and apartment costing $10,000, for A. M. Webb, Toronto.

W. J. McGuire, 91 Jarvis St., Toronto, and Dominion Radiator Co., Toronto, have heating contract in connection with new $200,000 theatre at Ottawa, for Loew's.

Alex. Joss has plumbing and heating for portable schoool, costing $6,500, for the School Board at Sarnia, Ont.

Hickey & Aubut have plumbing and heating for $150,000, addition to the plant of the Steel Company of Canada.

Bennett & Wright, Toronto, have heating contract for new $75,000 factory at Thorold, Ont., for the Beaver Board Company.

W. G. Edge Co., 47 Richmond St. E., Toronto, have plumbing and heating for bank, costing $180,000, for Merchants' Bank of Canada in Toronto.

John Colford has plumbing contract for factory, costing $50,000, at Montreal, for the Anglo-Canadian Wire Works, Limited.

The Garth Co. has plumbing and heating for extension to the plant of the National Acme Co., Montreal.

Belyea Bros. have plumbing for stores costing $45,000, for Grimshaw Bros., Toronto.

Purdy-Mansell, Ltd., have plumbing and heating for alterations, costing $150,000, to restaurant for Prince's, Ltd., Toronto.

H. MUELLER MFG. CO., LTD.

The H. Mueller Mfg. Co., Ltd., of Sarnia, Ont., is sending out a very attractive calendar for 1920. Above is shown a reproduction of the company's plant, and the calendar is below. Readers of SANITARY ENGINEER may secure calendars upon request.

New Indenture System Aims to Turn Out Perfect Mechanics

Important Step is Taken by Toronto Master Plumbers in Providing Every Facility for Technical Education of the Young Men Learning the Business

A NEW indenture system, which has for its aim the turning out of mechanics as nearly perfect as possible, has been inaugurated by the Toronto Society of Domestic Sanitary and Heating Engineers.

An apprentice endowment fund has been created by the Society, and will provide for scholarships for the apprentices. The whole system is based on efficiency, and it is up to the boys. They have the opportunity to get all the training they require, if they will avail themselves of it.

Weekly Classes

It is aimed, also, to get the parents of the boys interested, so that they will see that the boys attend the classes and avail themselves of the technical instruction which will fit them for a high place in the trade.

GEORGE CLAPPERTON

Who, as stated in the last issue of Sanitary Engineer, was elected President of the Toronto Society of Domestic Sanitary and Heating Engineers.

Two classes are to be held weekly, and an arrangement has been made with the educational authorities by which the best instructors in the city will be in charge. The classes commence this week. From the standpoint of the master-plumber, a very satisfactory feature of the arrangement made is that, if the apprentices for which he pays attend 85 per cent. of the classes, the fee is refunded.

There will be annual examinations, and marks awarded for proficiency. These will also form the basis of the scholarship awards. The master-plumbers take their apprentices on six months' probation. This is deemed fair to both parties, as many boys, after they have been at the work for a short time, want to go into some other trade. There have been many cases, also, of youths who simply took a job to tide them over until they got something else.

At the present time, there are more than 100 plumbers' apprentices in Toronto, and, so far, they are showing keen interest in the plan.

Will Start on 50 New Houses At Once

WINNIPEG.—As the first definite step toward relieving the housing shortage, the Winnipeg Housing Commmission will call for tenders, within ten days, for the construction of fifty residences in Fort Rouge and west-end districts. These houses, to be erected at a cost of about $185,000, are to be the first block of about 300 that the Commission proposes to build before next autumn.

FREIGHT RATES MAY AGAIN BE INCREASED

Continued from page 13

to 20 per cent., in conjunction with conditions such as retailers have been face to face with for some weeks, shortage of goods, delays in deliveries, and so on, might be to further unsettle the public as higher prices would result. This is not what merchants want, as it is generally recognized that the sooner business gets back to somewhat normal conditions the better it will be for everyone.

J. H. WILLIAMS & CO.

J. H. Williams & Co., makers of Superior drop-forgings and drop-forged tools, with works at Brooklyn and Buffalo, N.Y., have just issued a catalogue, 4 by 6 in., 160 pages, fully illustrating and describing their standard stock specialties. These include several new lines of goods, viz., "Agrippa" turning-tool holders, set-screw pattern, "Agrippa" boring tool posts, "Vulcan" forged cutter tool holders, and several new assortments or sets of drop-forged wrenches. The book contains, also, a description of the drop-forging process, in very simple, non-technical style for the benefit of those not conversant with its details. Readers of SANITARY ENGINEER who desire copies of the catalogue may obtain same upon request.

First Christmas Tree of Toronto Society Was a Splendid Success

More Than 350 Young People and Their Parents in Attendance —Will Likely be Made an Annual Event

THE members of the Toronto Society of Domestic Sanitary and Heating Engineers sprung a delightful surprise on their children on the evening of December 29, when the young people were invited to a gathering in Foresters' Hall. On arrival, they found Santa Claus there, with a tree loaded with presents. As quickly as possible, these were distributed, there being something for each young person.

Then followed a program which was splendidly varied, and included a movie show, a ventriloquist, instrumental and vocal selections. The singing of three-year-old William Clifton, son of Wm. Clifton, was especially enjoyed and heartily encored.

The affair was so thoroughly enjoyed that the Toronto men plan to make it an annual affair. There was, at a conservative estimate, 350 present.

Harry Farthing was chairman, and with him on the platform was Frank R. Maxwell and Louis LeGrow. The committee in charge of the arrangements was John Cracknell, Norman Swanston, Gordon Lynch, James Brown and David Norwich.

Among the visitors was Nicholas Kennedy, of Detroit, president of the Detroit Association of Master Plumbers.

Revised Shipping Rates Will Affect Many Sanitary Lines

AN important revision of shipping rates of particular interest to the plumbing trade has just been announced by the United States Shipping Board. New rates authorized on miscellaneous cargoes from North Atlantic ports to the United Kingdom, which will affect Canadian shippers. Cement, hemp, iron and steel, leather, wire and other goods, are contained in the list of revisions, as shown in the following table. Rates are per 100 pounds, except where otherwise stated:

Cement, in bags and barrels, 2,240 pounds, $15.00; cereals and all other breakfast foods, in bags or cases, $1.00; flour (except ground Tripoli), $1.00; hemp, up to 100 cu. ft. per ton, $1.50; hemp, over 100 cu. ft. per ton, $2.00. Iron and steel articles, viz.: Rates per ton of 2,240 pounds: Billets, iron or steel, $10.00; blooms, iron or steel, $10.00; brass bars and sheets, $15.00; car wheels, $11.00; copper ingots, pigs and bars, $13.00; hoops, iron or steel, $12.00; copper wire, rods and coils, $15.00; iron, pig, $10.00; lead, pig, $12.00; nails, wire, $11.00; pig iron, $10.00; pig lead, $12.00; piling, $11.00; pipe, cast, up to 4 in. outside measurement, $11.00; pipe fittings, $11.00. Pipe, nested, to take rate of smallest diameter of pipe in nesting: Pipe, wrought, up to 4 in. outside measurement, $11.00; plate, tin, $12.00; plates, iron or steel, not over 30 feet, $10.00; rails, up to 33 feet, $10.00; rivets, $12.00; scrap iron, $11.00; shafting, unfinished, $12.00; steel, cold rolled, in boxes, $13.00; steel, tool, $13.00; structural material, up to 30 ft. in length and 2 tons in weight, including angles, beams, channels, girders and T's, not fabricated, $11.00; tin plate, $12.00; tires, steel, $12.00; wheels, car, $11.00; wire, barbed, $14.00; wire, galvanized, $12.00; wire, plain, in coils, $12.00; zinc, $13.00; wire netting, per 100 pounds, $1.00; wire, piano, per 100 pounds, $1.00; leather, in rolls, bales, bags, bundles and counters and rands, per 100 pounds, $2.50; leather, in cases or barrels, except counters and rands, per cu. ft., $1.00; leather belting, $1.00; oakub, up to 100 cu. ft. per ton, per 100 pounds, $1.50; oakum, over 100 cu. ft. per ton, per 100 pounds, $2.00; rice, in bags, per 100 pounds, $1.00.

Little Chance of Important Tariff Changes in Near Future

OTTAWA.—That there is very little real danger of the tariff being seriously interfered with just now is plainly intimated in Sir Henry Drayton's recent statement on the subject of revision. To assure the public that the work of inquiry would be started by inviting it to send in written opinions as to what should be done certainly did not indicate that strenuous action was in prospect.

Sir Henry's statement shows that he sees just as many obstacles in the way of reduction as Sir Thomas White did last June. Indeed, as far as the exchange situation goes, matters are much worse than they then were. In addition the Minister of Finance has been in office long enough to realize that the problem of raising the necessary revenue is becoming more difficult. It is so if for no other reason than that expenditure took quite a leap after Sir Thomas White delivered his budget speech.

In the meantime the much-assailed tariff is gathering in revenue at a much more rapid rate than it did last year, and that, in spite of the fact that considerable reductions were made in the duties last session. During the first eight months of the present fiscal year $7,000,000 more were collected in customs' duties than was the case during the same period last year.

Being comparatively prosperous, people are buying far more heavily of dutiable goods than they were a year ago. During the last eight months the importations of free goods have fallen $57,000,000 below those for the same period last year, while the importations of dutiable goods have gone up nearly $60,000,000. Sir Thomas White estimated that this year's customs revenue would come in at the rate of $12,000,000 a month, but, so far the receipts have been at the rate of over $14,000,000 monthly. Such a showing is unlikely to make the tariff unpopular with a Finance Minister hard pressed for revenue.

ABSOLUTE TEMPERATURES

(Continued from page 15)

No matter at what level the accelerating coil is placed it must in all cases be above the foul air exhaust from the room.

In setting the accelerating coil in the flue it must not reduce the area of the flue. It is well to increase the size of the flue at the location of the accelerating coil.

The coils should be set in the path of the air and not against the walls of the flues.

"CALL THE POLICE HENRY - BURGLARS ARE IN THE HOUSE!!"
AND WHEN HE FINALLY GOT HIS NUMBER
"HELLO - POLICE DEPARTMENT? NEVER MIND NOW, THEY'VE ONLY LEFT ME AN' THE TELEPHONE - AND THEY'RE WELCOME TO THAT"
THE HOUSE
THE FURNITURE
Chamberlain

Do you know this kind of service?

UNEVEN CIRCULATION IN FORCED HOT WATER SYSTEM

WILL you please tell me why the heating system described here is not giving satisfaction? This system is installed in a building that is partly used for offices and partly for manufacturing, and is a system of forced hot water circulation. The building is not wide but is very long, its greatest exposures being to the north and south. Two steam boilers are used, but the boilers are not connected to the circulating system. They are connected to re-heaters, where the water is heated by the steam passing through tubes in the re-heaters.

Two main risers go from the re-heaters right up to the ceiling of the top floor, where they branch to mains connecting with drop-pipes which feed the radiators on that floor and on all the floors below. The sketch which I am enclosing will show how this is accomplished. You will note from this that the drop-pipes feeding hot water to the radiators also return the cold water from the same.

Have Both Connections

In one part of the building the radiators have both feed and return connections at the same end. In the other part of the building the radiators are connected at opposite ends. I am showing two drawings to illustrate this.

Each radiator has a valve. In some cases it is on the return and in some cases on the feed. The valves are not quick opening.

I forgot to say that the drop-pipes have shut-off valves both at their top and lower ends.

Now my problem is this: Why is there not a uniform heating all over this plant? How can I make this plant work evently?

From First Principle

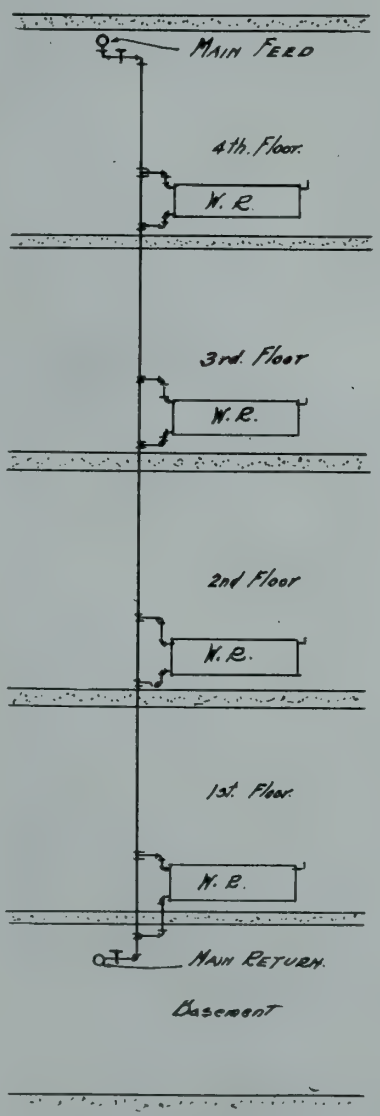
Answer:—To point out a few possible reasons why the plant is not giving satisfaction it will be necessary to reason from the first principle of water circulation.

We must first assume that the body of water within the entire plant is in perfect balance; so that it is devoid of movement. Now to effect a movement we must apply some force to offset that perfect balance. This force may be exerted by means of a pump, or by a change in the temperature of the water. No matter which force we apply an equal circulation of water will not be obtained unless we arrange the details of the entire plant in such a way that a uniform resistance is offered to the flow of water at ALL points. It will not do to have the radiators close to the point of application of the force offering less resistance to that force than those that are set at some remote point.

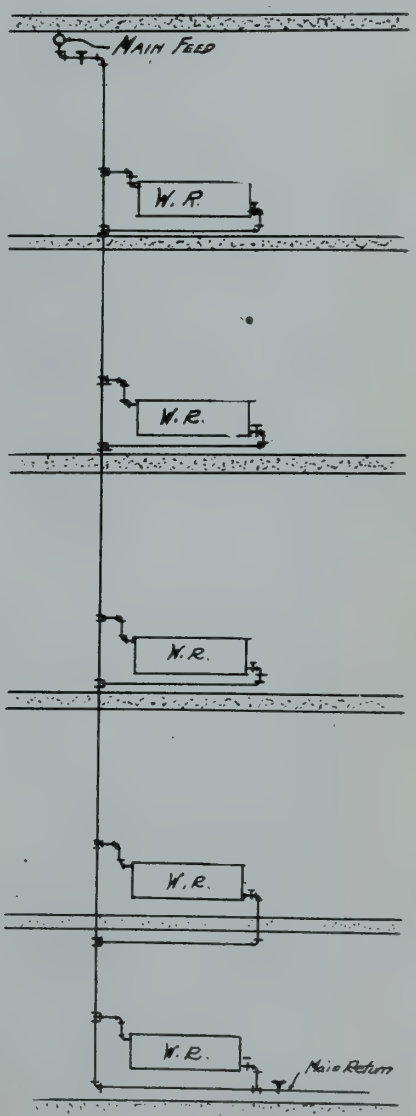
Sluggish Circulation

In making a design for a heating plant where the circulation is caused entirely by temperature conditions, we arrange the details of that system with regard to a comparatively sluggish circulation. We know that when there is no counteracting force, the water will tend to become uniform in temperature. But when we lay out a system where a rapid circulation is caused by some mechanical device we immediately see how "temperature-circulation" will not go very far in preventing the flow of water holding to a direct course. Thus we see that to establish an equal circulation through every part of the system, we must divert the flow of the water from the pipes of easy flow to those pipes not so favorably situated.

We now refer to the two drawings and we see that the feed risers run right past the radiators; the feed branches to the rads, being in the nature of a "shunt." If



HALF OF BUILDING PIPED LIKE THIS.



HALF OF BUILDING PIPED LIKE THIS.

this happened to be a gravity circulating plant, the temperature of the water in the riser would be the same as the temperature of the rads. The temperature of the top rad., of course, would be something lower than the temperature of the lower rad.; but as the "temperature-levels" would be uniform throughout, a uniform downward flow of the water would take place through these radiators and pipes. But just so soon as the pulling force of a pump is applied to the returns, the water is apt to take a direct course from the main feed down to the main return. The circulation through the radiators is still affected only by temperature-head; and the pump is in no way directly accelerating the flow of water through these most vital parts of the heating apparatus.

It would have been far better had the drop-pipe been reduced in size as branches to the radiators were taken off, and a separate pipe installed as a return.

Setting the Valves

But even as the system stands, a measure of uniformity of circulation may be obtained by properly setting the valves on the piping. To do this properly it willl be necessary to procure several thermometers (without metal guards) to take the temperature of the piping at various points. The bulbs of the thermometers can be held in contact with the pipes by means of soft putty balls, covered with cotton waste. In this connection it is well to note how the radiation has been figured for the building. If it has been figured on the basis of a temperature drop of 30 degrees, you should find that the returns, where they enter the re-heater, are at a temperature of 30 degrees lower than the feed pipes where they leave the re-heater.

After all of the valves on the feed and return pipes are set, a fairly uniform circulation of water will result. But we are then not through with our work; we must turn our attention to the radiators. It is quite possible to fire a boiler, in a residence, so that the heating is controlled entirely by the attention the boiler receives; but it is not possible to control the heating of a large building without manipulating the valves on the radiators. Now the opening and closing of these valves must not, in any way, interfere with the arrangement made to choke the area of the feed or return piping of a too rapidly working radiator. In providing a "choker" some engineers make use of a lock shield valve on the radiator return; other engineers use a feed valve with an adjustable valve sheath; and others use a reducing fitting such as a perforated metal disc, or an ordinary reduced fitting.

Need Re-adjustment

No matter how well a forced system of hot water circulation may be installled, there is likely to be need for certain adjustment of pipe areas at the time the circulation is tested out. It is for this reason that valves should be set, so that the necessary closing and opening of heat controlling valves will not affect the areas as fixed by the testing engineer.

If the radiators are set so that their high ends are next to a rising line of pipe, there will be no necessity of fitting air valves to the radiators.

We wish to call this reader's attention to the new series of articles on heating which will appear in the SANITARY ENGINEER. The information that will be then given will point out why systems of piping for forced circulation should be designed, laid out with as much regard to the laws of hydrostatics as of thermo-dynamics.

Perth, Ont.

Editor Sanitary Engineer:

We have a boiler problem here that has us guessing. It's a steam horizontal sectional boiler and when the pressure gets to above five pounds the water leaves the boiler. The boiler has been installed about fifteen years and never gave such trouble before. The water has a tendency to leave it several times a day and apparently does not return. The only change that has ben made is that two extra radiators were added this season. We cannot understand why this should make any difference. Can you suggest a remedy? If so, we will be greatly obliged.——Yours truly, Hope & Son.

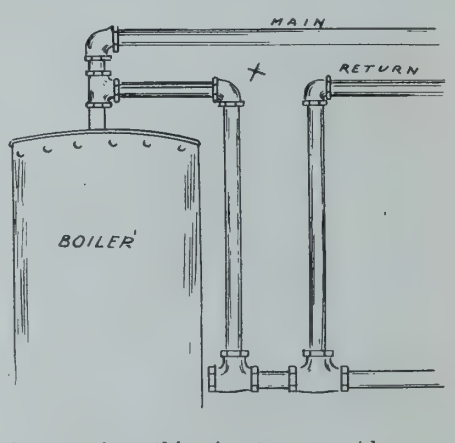
P.S.—Would the pipe X remedy it by equalizing the steam pressure? Or would checks on the returns be the correct remedy?

Must be Obstructed

Answer.—If the water slowly leaves the boiler and does not return when pressure drops, there is some obstruction in the main return. You may find that the boiler has been cleaned out at some time with washing soda, and that the oil and soda in the system has combined to form "hard soap." This "soap" will lie in the return and prevent the return of water to the boiler.

If the water in the boiler is dirty, it will be necessary to flush the dirt out in this way:

First: Remove the safety valve from the boiler tapping, and connect a valved pipe to



that opening; this pipe to run outdoors or to some other convenient drain.

Second: Close off all valves on pipes or radiator.

Third: Build hard fire in boiler until the gauge registers 10 lbs. pressure.

Fourth: Open valve in pipe connected with safety-valve opening.

Fifth: Turn cold water feed on, so that feed water will run into boiler slowly, and displace the dirty water running out of the pipe at safety-valve opening.

Keep the fire burning brightly and the pressure up while running the water through the boiler. This flushing should be carrried steadily through three hours' time.

Sixth: Draw fire, disconnect pipe from safety valve opening, replace safety valve, draw water from boiler, feed clean water to boiler, open radiator valves. The boiler is then ready for regular service.

If dirt in the boiler or in the piping is not causing the water to leave the boiler, there may be something in the piping arrangement of the two new radiators that is causing the trouble.

An equalizing pipe such as you show will assist the boiler in holding a steady water line.

With regard to the use of checks on the return, we may say that in an ordinary gravity system of steam circulation, the use of checks is not recommended.

PROPOSED NEW REGULATIONS

Continued from page 21

of burners is not more than half the stated maximum, the length of run may be increased one-half.

	Greatest length allowed in ft.	Greatest No. of burners.
⅜ inch	20	2
½ inch	30	5
¾ inch	60	20
1 inch	20	35
1¼ inches	120	60
1½ inches	160	100
2 inches	200	200
2½ inches	300	300
3 inches	450	450
3½ inches	600	600
4 inches	800	1,000

200. In applying the above table the number of burners per outlet in various locations shall be estimated as follows:

Parlor ceiling outlet	4 burners
Dining-room ceiling outlet ...	4 burners
Bedroom ceiling outlet	3 burners
Reception hall ceiling outlet ..	2 burners
Hall, pantry, wash-room and bath or toilet room ceiling outlet	1 burner
All brackets	1 burner

201. An outlet for a gas range or small water heater shall be counted as equivalent to five (5) burners, and a gas log or grate as equivalent to three (3) burners. Smaller pipe than half (½) inch shall not be used for kitchen ceiling outlets, except when a separate gas range outlet is provided near the floor, in which case three-eighths (⅜) inch pipe may be used.

Automatic Instantaneous Gas Water Heaters

202. All instantaneous gas water heaters, automatically controlled by pressure valve and thermostat shall conform to the general requirements of section 238, except that they may have pilot lights located entirely within the casing and arrange for continuous burning, and that they may be set with top of burners not less than eight (8) inches above floor; provided that every such heater shall be set on a sheet metal mat or pan and that the walls behind shall be protected by a sheet metal covering to the height of the heater.

203. Heaters of this type shall be provided with separate meter and supply runs not less in size than the following table, except that in case where the building is not piped or provided with any outlet for illuminating gas, not to exceed one gas range and one heater may be placed upon the same meter and the same supply run, the supply run to be increased one size over that shown in the following table, and not less than ¾ inch to the gas range:

Rated capacity:	
2 gallons per minute	¾-inch pipe.
3 gallons per minute	1 -inch pipe.
4 gallons per minute	1¼-inch pipe.
5 to 6 gallons per minute ..	1½-inch pipe.
7 to 10 gallons per minute .	2 -inch pipe.

204. Supply runs exceeding one hundred feet in length to be increased to the next larger size, and further increased one size for each additional 100 feet. Special permission required for capacities over 10 gallons per minute.

205. Gas fired steam power and house heating boilers may be installed provided that the said boiler be located in a separate fireproof room devoted exclusively to the purpose of housing boilers; that connection is made to an independent chimney or flue pipe without dampers or checks; that the room in which the boilers are located be open to the atmosphere; that the pressure boilers shall be under the care of a licensed engineer, and further, that no such gas fired steam power boiler or gas fired house heating boiler shall be installed without the previous written permission of the Local Board of Health.

Gas Engines

206. Gas engines must be connected to

separate service pipes from which no gas for illuminating or heating purposes is used.

207. Exhaust pipes shall be run to roof when possible and must not come in contact with the woodwork unless the same be properly protected.

208. Each diaphragm and bay must be on the same floor with engine and have a valve governing same.

209. The size of pipes used for supplying gas engines will be as follows:

Horse-power	Feet per hour.	Size in ins.	Length in. ft.
1	40	¾	50
2	80	¾	50
3	120	1	70
4 to 4	160 to 240	1	70
7 to 10	280 to 400	1½	150
11 to 20	440 to 800	2	200
21 to 27	840 to 1,080	2½	300

Location, Support, and Grade of Pipe

210. Each rising main shall be run in an inside partition and to a point not less than three (3) feet from the location of the gas meter when practicable; Provided, that in houses where meters are to be placed upon the floor, the outlet shall be left thirty (30) inches above the floor.

211. No pipe shall be laid so as to support any weight (except fixture) or be subjected to any strain whatever. All pipes shall be properly laid and fastened to prevent its becoming trapped, and shall be laid, when practicable, above timbers or beams instead of beneath them. When running lines or branches across beams they must be laid within three (3) feet of the ends of the beams, and in no case are the said pipes to be let into the beams more than (2) inches in depth.

212. No drop shall be taken from an ell; it must be taken from a T-fitting and a pipe must be run not less than four (4) inches longer to a bearing and be capped and securely fastened on both sides of the tee so as to prevent movement when the fixture is attached.

213. All pipes must be properly graded, and, if practicable, sloped toward the risers and meter. A bracket outlet shall be run as a riser rather than as a drop. No split pipe or defective fittings shall be used, and, if installed, they shall be removed whereever discovered. Any repair with cement or lead is prohibited.

214. Any gas pipe laid in damp or cold place shall be properly graded and dripped and covered with approved felt pipe covering. No gas pipes shall be laid in cement or concrete, unless the pipe or channel in which it is placed is well covered with tar, and all pipes shall comply with any regulation with respect to electric wiring whether the same be ground wires for bells, telephone, or electric gas lighting, or where the electric wire is in an insulated conduit.

Length of Outlets and Location of Burners

215. All outlets must be set plumb and securely fastened, each one having at least two straps, and they shall be left capped until fixtures are connected; they must not project more than (2) inches below plaster ceiling, centre-piece or wall.

216. Outlets for gas stoves, heaters or gas logs must not be less than three (3) inches above the floor and two (2) inches in the clear from the base board.

217. No bracket or burner shall be located under or near any tank containing inflammable oils, or behind any door, or within six (6) feet of any gas meter. No swinging or folding gas bracket shall be placed against any wood work, but a stiff bracket can be used if the length is not less than five (5) inches measured from the burner to the woodwork.

218. No gas hot water heater, gas range, gas radiator, gas light or other gas appliance shall be placed in any location where the location of meters is prohibited; nor in any garage or other place where inflammable oils are kept stored or used; nor in any moving picture theatre or place of public assembly, except that emergency gas lights may be used only on direction of the Inspector.

219. No gas log or open flame radiator shall be placed in any fire place which is not provided with a flue to the outer air and which is not thoroughly fire-proofed.

220. Gas brackets placed near window curtains or similar combustible material shall be protected by proper shields. All gas burners less than two (2) feet from a plastered ceiling or less than five (5) feet from overhead woodwork shall be protected by shields of approved material.

221. No independent gas cock or connection for a hose outlet shall be placed above the stiff joint on any chandelier or pendant, but such connection shall be brought down to an accessible point. Nor shall any independent gas cock for a hose connection be placed within three (3) inches of the key of a gas bracket.

222. Outlets for vestibules, public halls, basement or other public rooms in apartments, flats or tenements buildings, where the different suites of apartments ments or rooms are separately metered, shall be taken from a meter arranged to supply such outlets independently from the meters for the various apartments.

Fixtures and Tubing Construction

223. When brass pipe is used on the outside of plastering or woodwork it shall be classed as fixture tubing.

224. All brass tubing used for arms and stems of fixtures shall be at least No. 18 standard gauge and full size outside, so as to cut full thread. All threads on brass pipe shall screw in at least five-sixteenth (5-16) of an inch. All rope or square tubing shall be brazed or soldered into fitting and distributors, or have a nipple brazed into the tubing.

225. All cast fitting, such as cocks, swing joints, double centres, nozzles, etc., shall be extra heavy brass. The plugs of all cocks must be ground to a smooth and true surface for their entire length, be free from sand-holes, have not less than three-quarter (¾) inch bearing (except in cases of special design), have two flat sides on the end of the washer, **and have two nuts instead of a trail screw. All stop pins to keys or cocks shall be screwed into place.**

Weight of Gas Pipe and Tubing

226. Gas pipe, arms and stems of fixtures shall be of the kind classed as standard pipe and shall weigh according to the following table:

Size of pipe.	Pounds per foot.
¼ inch	.42
⅜ inch	.56
½ inch	.85
¾ inch	1.12
1 inch	1.67
1¼ inches	2.24
1½ inches	2.68
2 inches	3.61
2½ inches	5.75
3 inches	7.54
3½ inches	9.00
4 inches	10.66

Alterations or Extensions of Gas Pipe

227. When, for any reason, in remodelling old buildings, it is impracticable to comply strictly with these regulations, the Inspector of Plumbing shall have power to modify their provision so that the spirit and substance thereof shall be complied with.

228. Nothing in these rules shall prohibit the extension of a gas pipe from a building located on the front portion of a lot, to a stable, garage, workshop or building of a similar character, located on the same lot and owned, occupied or used by the same owner.

229. No extension or alteration of any existing system of gas piping in a building in excess of fifteen (15) feet in length, and unless the same is entirely exposed shall be made without reporting the work to the office of the Inspector of Plumbing for inspection and approval. Extensions shall conform in size to the table of section 199, and in no case shall extensions be made from smaller pipe.

230. When necessary to cut out pipe for extensions or repairs, pipe shall be again put together with right and left couplings or unions, and in no case shall running threads be permitted.

231. Rubber or other hose shall not be used to connect permanent fixtures with another fixture having an independent cock.

Gas Connections to Gas Stoves and Heaters by Stove Dealers

232. Any dealer in gas stoves, gas ranges and gas radiators or other gas appliances, maintaining an established place of business in any Municipality in Ontario may set such gas stoves, gas ranges, gas radiators and gas appliances other than lighting fixtures on the gas pipe system, or with an outlet fitting especially inserted by a licensed master plumber and may run the necessary pipe: Provided, that the individual, firm or corporation shall first declare their intention in writing to the Local Board of Health, and upon approval thereof, he or they shall register the name and address in a special registry book to be kept for that purpose, and they shall notify the office of the Inspector of Plumbing in writing, of the location and extent of the proposed work and the probable date of completion, so that proper inspection may be made.

233. Any work done by any person, firm or corporation registered as above provided, or by any employee of such a person, firm or corporation, without the said previous written notice, shall subject the responsible person, or the employee to arrest and prosecution the same as if no such registry had been made.

234. The privileges attending the above mentioned registry and the right to do work thereunder may be withdrawn by the Local Board of Health at any time or failure to report work for inspection or other sufficient reason.

235. Any electrician maintaining an established place of business in the Province of Ontario may remove and replace existing straight electric or combination gas and electric lighting fixtures connected to a gas outlet for the purpose of making necessary repairs to the electric equipment of the fixtures, or may hang new straight electric lighting fixtures to an existing gas outlet subject to such Regulations as to Electric Wiring as may be in force; Provided, that the individual, firm or corporation shall first declare their intention in writing to the Local Board of Health, and upon approval thereof, he or they shall register the name and address in a special registry book to be kept for that purpose; Provided Further, that prior to the commencement of any work he or they shall notify the office of the Inspector of Plumbing, in writing of the location and extent of the proposed work and the probable date of completion, so that proper inspection may be made.

236. Any work done by any person, firm or corporation, registered as above provided, or by any employee of such a person, firm or corporation, without the said previous written notice, shall subject the responsible person or the employe to arrest and prosecution, the same as if no such registry had been made.

237. The privileges attending the above-mentioned registry and the right to do work thereunder may be withdrawn by the Local Board of Health at any time or failure to report work for inspection or other sufficient reason.

238. Each gas water heater shall be provided with a door through which the gas burner and all of the heating surface shall be exposed for lighting and cleaning, and the outer casing or door of the heater shall not be provided with touch holes, ventilation holes or other apertures through which the burner can be lighted in any manner without opening the door for that purpose. The said heater shall be provided with a flue pipe and approved cowl or other approved ventilating device to carry off the noxious odors emanating therefrom to the outer

air at a point above the roof of the building in which the heater is installed; Provided, that connection may be made to a chimney flue, but the connection must in every case be made above the entering smoke pipe of the stove or furnace and no damper shall be placed in any such ventilating flue.

239. The use of pilot lights on water heaters is prohibited, except for large water heaters automatically operated by thermostat. (See section 202.)

240. The shutter on the mixing valve shall be so constructed as to prevent the possibility of disarrangement due to carelessness or expansion or contraction, yet it must be accessible and easily controlled.

241. No heater shall be set closer to the floor than two (2) feet, measuring from the top of the burner.

242. When complaint is made of existing gas water heaters they shall be made to conform to the above requirements or be replaced with heaters of approved type.

243. Any defective gas stove or range complained of shall be properly repaired or replaced with one of approved type.

244. The Inspector of Plumbing shall promptly condemn and order the removal, reconstruction or repair of any system of gas piping, or portion thereof, which does not conform to these regulations. He shall order the necessary repairs to be made when defects are found in any old system of gas piping, fixture or appliance connected therewith, and such repairs shall be promptly made by the responsible party upon the service of order or notice.

Inspection and Test

245. Upon the completion of any system of gas piping in a building it shall be promptly reported to the Inspector of Plumbing for inspection. The outlets shall be suitable capped and the system tested with air to a pressure equal to a column of mercury six (6) inches high in mercury gauge, and in the case of natural or acetylene gas a pressure equal to ten times the operating pressure. This pressure must be maintained for five minutes or for such additional length of time as will satisfy the Inspector of Plumbing, or his assistants, that the work is sound and tight. No pipe or fitting shall be covered or concealed from view until approved by the Inspector of Plumbing.

246. Extensions of gas-piping, the introduction of new outlets, and the connection of gas water heaters, gas logs, gas ranges, gas stoves, and radiators, lighting fixtures and engines, and appliances shall be reported and may be subjected to a visual inspection.

Use of Water Prohibited

247. In no case shall gas pipe be filled with water, acid or other liquids to test or tighten leaks, but the pipes shall be tested with air pressure only, and if it is found that water has been used in the pipe it shall be sufficient cause for the Inspector of Plumbing to condemn the whole line of pipe.

248. When water or other liquid is found in a gas piping system the plumber responsible for the work will remove the fluid in the presence of the Inspector by such method as may be determined upon by the Inspector of Plumbing in each particular case.

249. No gas fixture shall be hung until the Inspector shall be satisfied that the piping system has been freed of any liquids that may have been used to tighten same.

250. When the individual hanging the gas fixture learns of a violation of this section he shall immediately notify the Inspector of Plumbing.

Following is the corrected weights of the pipes referred to in section 33 of the proposed new regulations for Ontario:

Weights of Extra Heavy Cast Iron Pipe for Underground

Diameter of Pipe	Weight per Length of Five Feet.
2 inches	27½ lbs.
3 inches	45 lbs.
4 inches	65 lbs.
5 inches	85 lbs.
6 inches	100 lbs.
8 inches	165 lbs.

Weights of Medium Cast Iron Pipes, Waste or Vent

2 in. inside diameter	20 lbs.
3 in. " "	30 lbs.
4 in. " "	45 lbs.
5 in. " "	65 lbs.
6 in. " "	75 lbs.

No 8 in. in this weight.

Equalization of Imports and Exports Only Way to Restore Exchange Rates, He Says

FOREIGN exchange is a commodity and present demoralized depreciation in rates for sterling and other European exchanges is a normal expression of the law of supply and demand, declares James S. Alexander, president of the National Bank of Commerce, New York. Restoration of an approximate equilibrium of the imports and exports between the United States and Europe and a return of the currencies of Europe to a gold basis are the fundamental factors which will restore the normal demand for foreign exchange and bring it back to normal levels,

Mr. Alexander has taken a leading part in considering the foreign trade situation, having been chairman of the Committee on Credit and Finance at the Atlantic City International Trade Conference, held with unofficial representatives from Europe, under the auspices of the Chamber of Commerce of the United States, and being now chairman of the Executive Committee of the National Committee on European Finance. He is chairman of the Board of Directors of the French-American Banking Corporation and a director of the Foreign Finance Corporation. His statement in part is as follows:

"Depreciation of the foreign exchanges is primarily only a reflection of deeper problems in the relation of exports and imports between America and Europe. The problem may be simply stated as follows:

"When exporters sell to foreign buyers, they draw checks, drafts, etc., on those foreign consignees or their banks for the amounts due. These bills are drawn in foreign money, preponderantly pounds sterling, that is, on houses in London, long the world's international clearing house. Americans drawing these bills sell them in the foreign exchange market for what they will bring, which under normal conditions fluctuates within narrow limits of face value. The total volume of such checks and drafts coming into the foreign exchange market constitutes the supply of foreign exchange in existence at that time. The foreign exchange market consists of foreign exchange houses whose function is to buy exchange, say in New York, on London, and send it there for collection or the establishment of balances.

"The question as to what will correct the situation can be answered on general principles without any attempt to prophesy. Foreign exchange cannot come back to parity until the restoration of the gold standard in Europe corrects the depreciation of European currencies and until the restoration of approximate equilibrium between exports and imports in respect to Europe again makes the demand for foreign exchange approximate the supply."

—Indianapolis "News."

Only a question of method

Now for the Annual Reckoning

Inventory Season is the Time to be Honest With Yourself—It is Vital That You Should Know Just Where You Stand—Points to Watch in Pricing Your Stock—Taking the Inventory

THE time for inventory taking is at hand and rapid changes in prices, and a record demand for merchandise and general business conditions make it imperative that hardware merchants should give special attention to this matter. It is of vital importance for merchants to know just where they stand, what merchandise is making profits, and what is "warming shelves." It is obvious that shelf warmers do not make money, and if any are in stock they should be gotten rid of and replaced with goods that will bring in money.

While stock taking is not an easy job, it is essential that it should be done with accuracy and thoroughness. From a business standpoint, 1919 has been one of the best years on record, especially for hardware merchants. Unless the ppredictions of some of the best men in the commercial world are very far astray 1920 will be even better. It is then up to every merchant to get away to a good start and to know just exactly what he has on hand, what his requirements are going to be, and what is equally important perhaps, what he is not going to need.

Planning Ahead

"In my own case," said one merchant to SANITARY ENGINEER, "I always fix the actual date on which the inventory is to be written up. I begin by marking out the work fully a month before hand, and we make a start by grouping everything together in our cellar and store-room, keeping a sharp eye on the actual conditions of the various goods, so that if it should happen that anything is out of order when the day of writing up the stock arrives, the real value of the goods will be noted. In this way one is in a position of knowing clearly and correctly the actual value of the stock.

At this time, or rather just before it, I take care to buy as little as possible from the wholesaler, so that it makes it easier for my assistants to carry out their part of the work properly.

All containers should have a label placed on them showing the contents of the receptacle in each case, and marginal space left, so that in the interval, if anything is taken from stock, it may be noted accordingly. Thus, by the time stock-taking day arrives, everything outside and within the store is in good shape in the writing up of stock.

Exercising Care

In the evening, after the store is closed we proceed in earnest at writing down everything in the store, great care and system being taken so that no small corners are being missed. This might mean quite a considerable loss in the final total, if not carefully checked up.

I always begin right in one corner of the store, close to the front, and go over the stock shelf by shelf, beginning at the top shelf and coming right down to the floor.

Slip in Each Drawer

It is very necessary to have a slip in each drawer with a sufficient margin to mark off any goods sold in the interval. In the case of shelving, where there are no boxes, it is well to decide on either the left or right hand end of the shelf, for placing the sheet containing the list and carry out this system throughout the store and thus eliminate counting some stock twice and in other cases missing it entirely.

It often happens that several cases of the same article have been opened and some of the goods removed. It is well to go over all such cases and fill as many as possible to standard count, leaving as few as possible to count at the last minute.

Stock taking is almost invariably done during the quiet seasons, and it should be a house cleaning time as well. A good suggestion is to house clean first, starting a few weeks in advance, to clean out shelves, bins and drawers, etc., laying aside any articles that are slow sellers, shop-worn, or the tail end of a line of goods, etc.

May Be Surprised

If this policy is adopted the merchant will often be surprised at the amount of cash he has tied up in dead stock. A very successful idea has been to put this line of accumulated stock out on display and advertise it, either in the local paper or by table or window display, using cards with attractive slogans, advising the public of the chance to buy these goods. It will be found that it is not always necessary to greatly reduce the price, especially at the present time, when goods are so scarce. It is stated by some of the most experienced merchants, that if this plan is carried out before starting to count the stock that the clerks and even the "boss" himself will take more interest in trying to push the sales of these odd lines, with the final result that the new fiscal year will be started off on a paying basis with all clean and up-to-date stock.

Making the Entries

In entering goods in the stock book, it is a good idea to have sections of each portion of the store recorded separately, for the convenience of reference later, or, in case of fire or burglary. It might be necessary to check up for any one of the foregoing reasons at any time, and this separate recording of various parts of the stock would thus be of value.

The work of actual stocktaking does not mean, by any means, that the work is over. There remains much office work to be done, and this should be tackled right away. Of course, it is always assumed that books are posted right up to date, or as nearly as possible. All work of finding the amount of ledger accounts will have been done and these recorded.

Great care ought to be taken with regard to the exact amount of cash on hand and in the bank, it being fully verified right away, so as to avoid any error.

Once all the data of the wholesale and retail ledgers is ascertained, the work of making extensions of the stock can be proceeded with, a little more leisurely, and all the work leading up to your final balance is done at one's own convenience. Naturally, one wishes to get through with the various work as rapidly as possible, as there is a natural anxiety to ascertain the result.

The aim is, of course, that every article should be priced at the amount it would cost to purchase at time of stock-taking, and always allowing for discounts where they are allowed.

How to Take the Inventory

Accuracy always is the keynote of inventorying. The object is to ascertain,

beyond the slightest doubt or reasonable question, just what merchandise and other things you have. The count must be right. Nothing else will do. Where it is necessary to estimate, like when we have a barrel of oil partly used, the estimate must be conservative. If it looks like somewhere between 15 and 20 gallons, put it down at 15. Get on the inside always where there is doubt. Otherwise, where it is possible to weigh or count, get down the exact amount of saleable goods. If there are damaged items, put them in below the sound ones, indicating, as nearly as you can, what they are worth.

These are rules always to be observed; but if ever there was a time when one should be extra conservative, that time is right now. Things have been advancing rather steadily for a long time. Men have become a little liberal, sometime reckless, about ordering. They have felt that everything was "a safe buy" until some are loaded up heavily. Nothing is "good property" which does not turn normally. Some lines have the disadvantage that they deteriorate steadily.

Now, I am not going to prophesy that things are due for a slump. It is always foolish to prophesy and right now it is absolutely superfluous, for one mighty cogent reason—this:

Loss and Shrinkage There Already !

That on such goods as you have in excess of normal current requirements, you have sustained the loss already, regardless of the market! Get that? Every day you keep goods on hand costs money. Therefore, any goods you hold beyond the normal time of turnover have piled up against them an abnormal expense. When this extends beyond a certain very narrow limit, your loss is just bound to exceed any advantage that can possibly accrue from what you like to call "good buying."

There is, as a matter of fact, just ONE kind of good buying. That is underbuying. That makes for the quick turn, and the quick turn is the whole law and profits in retailing.

So there is no use trying to sidestep the fact that excess stocks stand you a loss; that the loss is there now, whether you admit it or not. So we need not speculate on what the market is going to do in that connection.

How Shall We Price Our Stocks

All these factors influence the value of your stock on hand. If you have goods enough to cover your normal sales for five months ahead, that stock should be taken in at not more than 80 per cent. of its replacement value, and 75 per cent. would be better. Such facing of plain facts may cause you to slow up on liberal buying for a long time. If you slow up as a permanent habit you will make more real money out of your business!

These are hints at how to price your goods. How far you will go on other lines depends on your own circumstances and environment; but a hint or two from some very successful people always must be of value.

Here's One Plan

In one big jobbing house the practice is this way: In case of goods which have advanced since they were purchased, the value is put in on original cost. Where goods have declined since they were bought they are priced on the basis of replacement costs. This, you see, is working against the stock with a vengeance, but this is done by a very successful concern.

Remember, too, that whatever value you put into your inventory you will not change the actual value of the merchandise. If, therefore, you value it too high, the stock will not pan out and you will be badly fooled. If you undervalue it the stock will come up better than you calculated. That is the only kind of self-fooling that you can afford to have around your shop.

What will you do when you have the lists completed? Obviously, you yourself must work nights and at every odd moment pricing and totalling the sheets so you can balance your books. This work always is most valuable to every thoughtful merchant, for it will show him precisely where he has too much stock—and practically all of us are subject to this weakness.

This is the finest time of the year to see just how much more than you should have is in stock. As a preliminary, you might figure out what you should have, based on your sales.

Keep It Normal

Having set down that kind of figure for your own business, you will be astonished to find how much you have in excess of what you should have. Then, when you have found this out you will begin to reduce stocks. It is not so desirable that you make cut price sale, though you may have to reduce some items to clean them out, as it is that you stop buying. Cut every order down to just what you must have. When you have reduced stock to normal, keep it there. That is perhaps as valuable a result as you can expect to get out of the habit of taking an inventory.

But take the inventory anyway. Know where you stand at least once annually.

Judge Rules That Charges Must Be Paid

An important point was decided in Montreal by Mr. Justice McLennan of the Superior Court, regarding the entering by a clerk of a charge for freight.

This case was one of an action by Lee, Kee, Yick and Company, trading in Montreal as Yick, Ling & Co. against the Canadian Pacific Ocean Services, Limited. It appears that ocean transportation had been taken on a quantity of goods for the complainant and the charge made for these was $55.60; on the other hand the amount should have been $551.60, but a clerical error explained the deficiency between the proper amount and the amount charged.

The parties to the action claimed that the goods were sold much cheaper than they would have sold them, had the freight been charged the full amount. The Judge, in considering the whole matter, however, found that owing to the fact that the plaintiffs were accustomed to importing goods from the Orient and also had a good idea of freight values, that the company must pay to the carrier, the C.P.O.S. Company, the difference in freight charges due to the clerical error and also the cost of the suit.

Misuse of "Profiteer" Hurts All Business

Business men of many cities have, no doubt, many times had the feeling which recently found expression in a bulletin of the Better Business Bureau of Los Angeles, California, relative to the loose employment of the word "profiteer," both in advertisements and in editorial columns, says a bulletin from the Associated Advertising Clubs. Just such action might be taken by other advertising clubs, as well as other local bodies of business men, the National Vigilance Committee suggests. The statement, signed by A. H. Wilkins, secretary of the Bureau, is as follows:

"For a considerable time past, a vast amount of publicity has been attached to the term 'profiteering.' A careful study of this publicity has, in the opinion of well-informed business men, failed to show facts that would give reason for the claims and arguments that have been used in connection with this work.

"The effect of this publicity, without question, has been very broad, and it is hard at this moment to determine just what per cent. of this effect has been good and what per cent. has been bad.

"Believing that publicity surrounding this word, which is not based upon absolute fact, reflects unjustly on the reputable and honorable business houses of this city, and has a great influence in creating a lack of confidence in all business and advertising, the Better Business Bureau, at this time, respectfully suggests to the publishers and publicity agents that all such publicity should be discouraged, except in cases where evidence and facts are actually in hand, and that in its place every effort be made, through the editorial and publicity channels, to stimulate production, the shortage of which has been proven as the real fundamental cause of the high cost of living."

100 per cent. Increase in Building

Figures for 1919 Are Remarkable When Labor Troubles, Difficulty in Obtaining Materials and Other Troubles Are Considered—Indications Are That 1920 Will Smash All Previous Records

THERE is little doubt that when the building figures for 1919 are in that the total will exceed $75,000,000. This will be an increase of more than 100 per cent. over the totals for 1918, when the figures were approximately $34,944,212.

November, owing to weather conditions, is usually an unfavorable month for building, but this year the total was $6,889,000, an increase of no less than $4,690,000 over the same period a year ago.

Making New Records

All this activity means just one thing in the opinion of those who are in touch with the situation and that is that 1920 is going to see all previous construction records shattered.

This means opportunity for the sanitary engineers, not only in the sale of tools and materials required for the new homes and other structures, but in supplying the needs of those who are going to occupy the homes.

Architects have never been busier and plans now being prepared run into many millions. A feature of the work in hand is the large number of residences that are planned. Hundreds of these are for people who are tired of paying excessive rents. They would rather put up with the high cost of building and have a home out of which they cannot be ordered by landlords, than to continue paying huge rents and at the end of a few years have nothing to show for their expenditure.

Many Small Homes

The coming year will see the erection of a large number of homes of the smaller type also, especially those suitable to the requirements of the workingman. This is one of the big problems in connection with the whole acute housing situation. Scores of manufacturers are at their wits' end to find accommodation for their employees. Some firms are erecting dwellings for their employees. Others are working through the municipal councils and the Housing Commission and, in many cases, the workers themselves are planning to build.

Many Private Garages

A feature of this year's building that has exceptional interest for hardware merchants in the large number of private garages being built. In the city of Toronto alone more than $1,000,000 has been spent in eleven months for garages alone. To the hardware merchant who is handling auto accessories this means only one thing, more and still more business, as every auto which is sold requires supplies and accessories. What has happened in Toronto in regard to the building of private garages is happening in proportion all over the country and even greater expenditures are expected in 1920.

Activity Is General

The building activity and prospective building activity for 1920 is not confined to any particular areas. It is general and from all parts of Canada is reported a demand for more homes and more factory accommodation.

In view of the fact that Canadian builders have had exceptional problems to face this year in the way of labor troubles, difficulty in obtaining materials and similar conditions, this year's showing is a remarkable one.

With many of these matters adjusted and conditions improved, there seems little to prevent 1920 far outstripping this season.

Are Working Together

The fact that the various organizations in connection with the building trades are working together to facilitate construction work is a most encouraging feature. During the past season in many cases the men in one trade made demands which resulted in large amounts of work being held up because people who planned to build were not sure where they were going to finish in case they started. This also affected men in other trades. It is realized apparently that this is a situation that is not conducive to good business generally, and with a view of eliminating any such troubles discussions have taken place recently which are expected to result in a working agreement that will not hold up construction.

BUILDING PERMITS ISSUED IN NOVEMBER, 1919

	November 1919	November 1918	Change	1919. 11 months	1918. 11 months	Change.
EASTERN CITIES						
Maritimes—						
Halifax	$ 224,210	$ 326,907	—$ 102,697	$ 4,880,666	$ 2,783,465	+ $ 2,097,201
St. John	226,500	2,500	+ 224,000	506,540	351,325	+ 155,215
Sydney	20,585	18,690	+ 1,895	665,663	404,416	+ 261,247
Quebec—						
Montreal	890,864	339,475	+ 551,389	9,375,500	4,707,638	+ 4,667,862
Quebec	171,378	69,050	+ 102,328	2,043,069	898,800	+ 1,144,269
Westmount	26,290	7,250	+ 19,040	805,605	270,061	+ 535,544
Ontario—						
Brantford	194,945	128,445	+ 66,500	1,095,255	758,435	+ 336,820
Fort William	46,500	525	+ 45,975	627,080	481,250	+ 145,830
Hamilton	525,940	374,285	+ 151,655	4,906,712	2,162,004	+ 2,744,708
Kitchener	86,690	1,265	+ 85,425	1,159,282	235,662	+ 923,620
Kingston	12,798	18,355	— 5,562	513,795	310,395	+ 203,400
London	109,960	110,690	— 730	2,023,970	848,680	+ 1,175,290
Ottawa	264,550	41,600	+ 222,950	3,108,767	2,561,554	+ 547,213
Port Arthur	10,968	3,240	+ 7,728	1,707,131	605,806	+ 1,101,325
Stratford	10,805	1,125	+ 9,680	367,396	89,751	+ 277,645
St. Catharines	44,035	13,319	+ 30,716	834,511	450,322	+ 384,189
Toronto	2,536,045	396,385	+ 2,139,660	17,779,811	7,924,880	+ 9,854,931
Welland	36,314	9,300	+ 27,014	378,885	427,304	— 48,419
Windsor	291,285	42,800	+ 248,485	2,528,310	533,470	+ 1,994,840
Woodstock	15,890	640	+ 15,250	123,997	115,938	+ 8,059
St. Thomas	6,810	9,025	— 2,215	221,475	54,310	+ 167,165
Total 21 East. Cities	$5,753,357	$1,914,871	+$3,838,486	$55,653,420	$26,975,466	+$28,677,954
York Township	419,550	.....	+ 419,550	4,097,200	.....	+ 4,097,200
WESTERN CITIES						
Manitoba—						
Brandon	$ 7,000	$ 17,046	—$ 10,046	$ 91,381	$ 98,722	— $ 7,341
St. Boniface	1,450	11,000	— 9,550	358,435	264,115	+ 94,320
Winnipeg	309,400	53,050	+ 256,350	2,798,550	2,040,800	+ 757,750
Alberta—						
Calgary	56,000	42,500	+ 13,500	2,177,100	1,169,500	+ 1,007,600
Edmonton	83,205	19,400	+ 63,805	921,746	341,710	+ 580,036
Lethbridge	12,890	4,620	+ 8,270	162,110	135,550	+ 26,560
Saskatchewan—						
Moose Jaw	8,200	3,200	+ 5,000	541,995	519,695	+ 22,300
North Battleford	.....	535	— 535	52,565	13,270	+ 39,295
Prince Albert	10,050	5,000	+ 5,050	195,611	85,548	+ 110,063
Regina	173,350	32,950	+ 140,400	1,686,620	986,690	+ 699,930
Saskatoon	20,445	8,350	+ 12,095	1,375,035	595,665	+ 779,370
Yorkton	41,425	1,700	+ 39,725	337,800	26,700	+ 311,100
British Columbia—						
Vancouver	387,530	70,798	+ 316,732	2,152,958	1,358,731	+ 794,227
Victoria	15,185	11,165	+ 4,020	406,791	229,290	+ 177,501
New Westminster	10,200	3,800	+ 6,400	156,282	102,760	+ 53,522
Total 15 West. Cities	$1,136,330	$ 285,114	+$ 851,216	$13,414,979	$ 7,968,746	+ $ 5,446,233
Grand total, 36 cities	$6,889,687	$2,199,985	+$4,689,702	$69,068,399	$34,944,212	+ $34,124,187

Says "The Golden Rule" is the Real Solution of Capital and Labor Problems

Hamilton Manufacturer Tells of Remarkable Results That Are Being Obtained—Plan Has Been Followed Out Now for Five Years With Great Success

AT the present time when troubles due to differences between employers and employees are more numerous and more acute than at any time in the history of the world, it is interesting to note the results that the application of the "Golden Rule" have had in a Hamilton, Ont., factory.

At the annual dinner of the employees of the Dominion Sheet Metal Corporation, President A. T. Enlow stated that for the past five years the firm has been applying the Golden Rule in all dealings with employees, and in that time they had never been asked by any employee for an increase in wages, that no employee had ever stated that he was dissatisfied, and in no way had any complaint regarding shop conditions ever been brought to his attention.

In New Warehouse.

The dinner was held in the large new warehouse recently erected by the company. A unique touch was given to the gathering when as the toast to the King was being honored, the lights were suddenly turned out, and left those present standing with glasses uplifted, singing "God Save The King." A spotlight was turned on, showing Union Jacks and Canadian emblems. These were fastened directly in front of the president's place of honor. The effect was not only striking but impressive.

J. M. Paterson, of the shipping department, was chairman for the evening. The new building consists of a two-storey steel and brick structure, 50 x 140 feet. It was profusely and very attractively decorated for the occasion. Conspicuous among the flags were two showing that in both 1918 and in 1919 100 per cent. subscriptions had been obtained for the Victory Loan.

A Fine Program.

The program included choruses by all present, songs by W. A. McCutcheon, of Hamilton; Scotch songs by Miss Grace Miller, and a number of speeches. The toast to Canada was responded to by Mr. W. H. Cooper, the contractor, who built the new plant.

Russel T. Kelly replied to the toast, "Co-operation," in a manner which left no room for criticism. He made a hit with his finale, a recitation entitled, "Lifters and Leaners."

Teachers' Salaries.

The reply to the toast to the ladies could not have been handled more gracefully than by Mr. Geo. A. Simpson, of the Steel Co. of Canada. During his address, he brought out a point which should receive the attention of every sanitary engineer in Canada who has anything to say in municipal affairs, and that is the paying of better salaries to the women who are responsible for training of Canada's children—the school teachers.

President's Address.

President A. T. Enlow, in responding to the toast to "Our Company," made

A. T. ENLOW
President of the Dominion Sheet Metal Corporation, Hamilton, Ont.

some decidedly interesting comments in regard to the firm's policies and especially in reference to its profit-sharing plans. He announced that every employee who has been with the firm six months was to receive an Insurance Policy for $1,000, which will increase at the rate of $100 a year until a maximum of $1,500 is reached, the benefit payable on death or total disability to his family.

The Premier Benefit Club is kept up by employees paying 50c each a month. This last year they paid in about $360, paid out $900, and have in the treasury at the present time $2,500, and the fund has only been running a year and a half.

Other Payments Too.

He explained that sometimes it is possible to make other payments also. For instance, if the firm is able to make a good deal, such as in the Salvage of Damaged Stock, Big Product Sales and Sales Effected, or through Shop Economies, ten per cent. of the amount was turned over to the Benefit Club.

In regard to the profit-sharing or stock proposition, he stated that the employees pay in 2% or $2 a month on each $100 share, and they get the benefit of the regular 8% dividend without any carrying charge for interest, and in addition they also are credited with all dividends paid on the common stock, so that up to date for the last half of 1919 they have paid in $12 per share and have received additional benefits of $9, a total of $21.

J. C. Edwards, Hamilton representative of SANITARY ENGINEER, was introduced, and stated that he had found much pleasure in his two years of contact with the manufacturers of Hamilton and particularly drew attention to the pronounced "get-together" spirit which was in evidence in Hamilton. This spirit, he said, when carried out between employer and employee, as seen in the splendid banquet given by the Dominion Sheet Metal Corporation, must result in mutual benefit.

In winding up the programme, a vote of thanks was given the entertainers, speakers and the men who so successfully carried out the programme.

Tells How to Avoid Colds and Influenza

REPORTS from Australia indicate that a recrudescence of the influenza epidemic occurred during the recent winter (which synchronizes with our summer). There were from 1,200 to 1,500 cases as a daily hospital average in Victoria. The mortality in Melbourne was from 10 to 12 deaths daily. In Sydney, a severe outbreak occurred in June, the mortality assuming serious proportions for one or two weeks. With milder weather in mid-July, the outbreak rapidly subsided.

We, in Canada, will soon be sustaining a prolonged cold spell, hence the necessity for the public to bear in mind that there is the danger of a recurrence of the disease in Canada. Every individual should take precautions against infection. Keep the body warm and guard against sudden changes of temperature. Guard also against fetid air. The more the bodily heat can be kept up by natural and the less by artificial means, the better. As 'natural means' we include heavy clothing, nourishing food, air well supplied with oxygen and physical exercise. Artificial heat is secured by fire through the various heating systems.

A person who is well fed and well clothed and who moves briskly can easily support prolonged exposure to the severest cold. The greatest danger in Canada is the shock to the system produced by getting over-heated indoors and then going outside in zero weather. This is also a prolific cause of colds.

Most Canadian houses are overheated in winter. Their average temperature is often higher than during the summer months and certainly higher than in spring and autumn. This is unnecessary, it wastes fuel and it endangers health. Women are prone to wear too light clothing in winter. It would be much safer for them to dress more warmly and have their houses ten degrees cooler.—C. A. Hodgetts.

Montreal Court Explains Term F.O.B.

AN important ruling was made in Montreal last week which is of much interest to the trade. This refers to the commercial expression "f.o.b." and makes a ruling as to the significance of this term.

The seller at his expense under this term "Free on board" means that the seller at his own expense places the goods on the car or vessel which is to carry them from the point specified and that the buyer takes the risk onwards; at the same time the goods must, at destination, be in conformity with the conditions of sale or they may legally be rejected.

The matter developed out of an action of a Montreal and Quebec City firm. Masson Sons, Ltd., of Montreal, sued E. Coulombe, of Quebec, for the sum of $1,460, being the value of a carload of tomatoes shipped to Quebec to the order of the defendant. The shipment was f.o.b. Montreal, and when the tomatoes reached Quebec defendant complained they were not in the condition he stipulated in his orders. He advised the plaintiff by telegram accordingly, but they persisted that he was responsible to them for the price agreed upon. Defendant, knowing that tomatoes would be a complete loss if shipped back to Montreal, sold them at once in Quebec for the best price he could obtain, deducted 5 per cent. of his commission on the sales, and forwarded the balance, $868.07 to plaintiff, who however refused to accept the cheque and sued the defendant for the price agreed upon when the order was given by defendant, namely, $1,460.

Plaintiffs based their claim on the fact that the tomatoes were in good condition when they delivered them "f.o.b. Montreal," and that from this point defendant was liable. On his side the defendant submitted that the "good condition" mentioned in his order referred to the state the tomatoes were to be in at Quebec.

There was no delay in transportation, and the main question for adjudication turned on what interpretation was to be given, in the circumstances, to the expression, "f.o.b. Montreal."

The Court's Ruling

Mr. Justice Panneton said there was a divergence of opinion on the meaning to be given to the commercial expression, "f.o.b." In England, the weight of jurisprudence was to the effect that the object sold was at the risk of the purchaser from the moment it reached the point of delivery "free on board." A decision was reported, however, which gave to these letters a limited sense—that was to say, the vendor put the merchandise sold at the place indicated "free of all such costs as cartage, wharfage," etc., and it was the latter sense that had been adopted by the jurisprudence of the courts in the United States. In the case of the Dominion Lumber Company vs. Auger, confirmed by the Court of Appeal, the following definition was given to the letters, f.o.b.; "They mean that the seller, at his own expense, shall place the goods on the car or vessel which is to carry them on account of the buyer, at whose risk they are from that time."

"It is necessary," said Judge Panneton, "to distinguish delivery from acceptation of the thing sold. The carrier is the agent of the purchaser, but his mandate is limited to the transportation of the goods. The question to decide is whether it was the thing sold which was delivered at Montreal. According to the proof, the tomatoes were to be of first quality (No. 1), and in good condition. They were neither the one nor the other. If. in the case of the sale of goods by correspondence, as in this instance (the order was given over the telephone), the rule was adopted that inspection had to be made at the place of delivery when that place was not the destination, it would be necessary that the buyer, who resides in another city or country, should have an agent to make an inspection of the merchandise at the place where the goods were placed on the car or vessel. This would be impracticable.

Understanding Not Vague

"When a merchant in Montreal sells goods to a merchant in Quebec he knows and understands very well that the buyer can only know the condition of the goods when they have reached their destination. If the vendor has correctly delivered the thing sold, the buyer becomes the proprietor immediately. If he delivers something else—for instance if he has sold goods of first quality and delivers goods of second quality, there is no delivery of the things sold. The buyer can refuse them only when they arrive at their destination.

In this case the court concluded that the attitude of the defendant was correct, and that, although the tomatoes were sold f.o.b. Montreal, the defendant could not refuse them until they reached Quebec, and that his refusal was proper under the contract, inasmuch as the tomatoes were not in the good condition that the contract specified. For this reason the judgment of first instance was reversed, and it was held that the defendant's offier of $868.07 was sufficient in the circumstance.

There was a slight variation of the order as to costs, part of which were against defendant because he did not pay into court the amount he admitted he had in hand in payment for the tomatoes.

MARKET CONDITIONS

(Continued from page 40)

Owing to the scarcity and unsettled conditions of the markets locally it is almost impossible to quote accurate prices, as nearly all who have stocks have procured them under unusual conditions, and sheets, galvanized, 10 oz., for instance, are quoted anywhere from $9.25 to $10 per 100 lbs.

The following are the prices:

BLACK SHEETS—

14 gauge	5 45	6 50
16 gauge	5 90	6 95
18-20 gauge	5 45	6 85
22-24 gauge	6 50	6 90
26 gauge	6 60	6 95
28 gauge	6 75	7 05
3-16 inch plate	5 20	5 55
¼-inch boiler plate	4 80	6 10

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS—

	Premier		Apollo	
10¾ oz.	$9 20	$9 80	$8 55	$9 55
U.S. 28	8 60	10 20	8 15	8 85
U.S. 26	8 20	8 80	7 85	8 50
22 and 24	8 00	8 20	7 70	7 30
18 and 20	7 80	8 00	7 55	8 10
16	7 55	7 80	7 40	7 90
12 and 14	7 35	7 55	7 25	7 65

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga. when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Copper, Lead, Spelter ½c Higher; Tin Advanced

INGOT METALS have shown higher upward movements during the past week, and still higher prices are predicted. Copper is again in good demand and has advanced ½ cent per pound. Tin is 2½ cents per pound higher. Lead is up ½ cent per pound. Spelter has also advanced ½ cent per pound, while antimony and aluminum remain unchanged.

TIN.—An advance of 2½ cents per pound has been reported on tin, and the new price is now being quoted at 63 cents per pound.

COPPER shows an advance of ½ cent per pound, and is again in good demand, some large quantities having been purchased on the primary market, where an advance is also reported of 2 cents per pound. The present quotation is 24½ cents per pound.

LEAD is ½ cent per pound higher, and is showing increasing demands.

SPELTER is showing better demand, having recovered from its weakness, and an advance is reported of ½ cent per pound. The quotation now going is 11½ cents per pound.

ANTIMONY is showing considerably heavier demand, although the price has remained unchanged at 12 cents per pound.

ALUMINUM is unchanged. The present quotation being 34 cents per pound.

Market Conditions and Tendencies

Statements Regarding Supplies and Trend of Prices

THE MARKETS AT A GLANCE

THE advances reported in plumbers' and sanitary goods are of importance. Among these important changes are noted: Cistern pumps, showing 5 to 10 per cent. higher prices. Range boilers advanced 7½ per cent. Solder is 2c a pound higher. Boiler tubes are expected to advance 1 to 3c per foot after January 1, 1920.

Porcelain prices are still withdrawn, but it is expected that new higher prices will soon be issued. Conductor pipe, also soil pipe may soon advance.

Lower prices, according to present indications, seem out of the question. Considerable effort is required to procure goods, it is stated. This may be due to lack of production, which more and more has become the dominating factor of the situation. Manufacturers and mills are preparing to give this problem their special attention immediately. They advise all to bear in mind the difficulty in getting supplies and while it is not always good policy to stock heavily, especially at this time of year, it is well not to be caught with too little stock during the middle portion of 1920, it is stated.

TORONTO, Dec. 31.—Very important changes have taken effect in plumbing and sanitary goods. Some of the goods showing high prices are: Cistern pumps, 5 to 10 per cent. higher; range boilers, which have been firm for some time back, have advanced approximately 7½ per cent.; solder is up 2 cents per pound. An advance is expected in boiler tubes, of from 1 to 6 cents per foot. Oakum, conductor and soil pipe may soon advance.

The outlook for 1920 is unusually bright, and from the manufacturers all down the line, one of the best years in their history is expected. Whether this will be realized depends entirely on conditions. The one thing to assure the filling of any large demands will be the settling down of labor, it is stated. Many report depleted stocks throughout the trade, and are speeding production through the slacker season, in order to catch up with delayed orders.

Cistern, Well and Cylinder Pumps Advance 5 to 10%

PUMPS.—Cistern, well and cylinder pumps have advanced approximately from 5 to 10 per cent. and new prices are now in effect. This is not unexpected, as pumps have been showing firm tendencies for some time, and it is stated the new prices are reasonable in accordance with present costs.

Oakum Prices Firm; May Soon be Advanced

OAKUM is reported at a very firm figure and every indication points to higher prices at a very near date. The following are the present quotations:

	Per 100 lbs.	
Best American	$21 00	$22 00
Clipper, spun	.....	21 00
Do., unspun	....	19 50
Plumbers' spun	10 00	10 75

Porcelain Ware Prices Have Not Yet Been Issued

PORCELAIN WARE.—The prices of this commodity are still withdrawn and present prices are on application. It is expected, however, that the new prices will soon be available.

Range Boilers Advance 7½%; Prices Herewith

RANGE BOILERS.—As predicted in last issue of SANITARY ENGINEER, range boilers have advanced. The high rate of exchange is still a feature, and orders are, to a large extent, contingent with these rates. It is stated the demand for range boilers is a strong one. One of the causes for the heavy demand is attributed to the large amount of dwellings that were started late in the season and managed to get the outside coverings completed before the cold weather set in, allowing the trade to install the plumbing through the cold weather.

The following are the new higher price quotations:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$12 00	$14 00
35-gallon	14 00	16 00
40-gallon	16 00	18 00
52-gallon	22 00	25 00
66-gallon	35 00	38 00
82-gallon	40 00	47 00
100-gallon	50 00	58 00
120-gallon	60 00	67 00

Solder Advanced 2c Lb.; Other Products Firm

LEAD AND ZINC PRODUCTS are holding at firm prices. Although the basic metals are of a fluctuating nature, new and higher prices in the products would not be surprising. Solder is already quoted at higher prices, which it is expected will hold for some time to come. The following are the present quotations:

Lead pipe, list, per lb.	....	0 13½
Lead waste pipe, list, per lb.	....	0 14½
Do., over 8 inches, list, per lb.	....	0 15½
Above subject to discount of 10%.		
Lead traps and bends	....	5%
Lead wool, lb.	....	0 16
Lead sheets, 4 to 8 lbs., sq. ft., in rolls, lb.	....	0 10½
Cut sheets ½c to ¾c lb. extra, and cut sheets to size, 1c lb. extra.		
Solder, guaranteed	0 35½	0 36
Solder, strictly, lb.	0 34½	0 35
Solder, commercial, lb.	0 32½	0 33
Solder, wiping, lb.	0 31½	0 32
Solder, wire, lb.	....	0 42¼
Zinc sheets, per lb.	....	....

Boiler Tubes May Advance 1 to 3c First of New Year

BOILER TUBES are very firm. It is stated that an advance of from 1 to 3 cents per foot may take effect the first of the new year. This advance, if effective, would, no doubt, be a reaction from the great scarcity of raw materials. The congestion at the mills is said to be causing great inconvenience. Delayed shipments, due to the previous coal strike, also the high rate of exchange, are all factors towards higher prices and shortages of materials.

The following are the price quotations:

	Per 100 feet	
BOILER TUBES—	Seamless	Lapweld
1 inch	$27 00	$.....
1¼ inch	29 00	.....
1½ inch	29 50	.....
1¾ inch	32 00	27 00
2 inch	31 00	26 00
2¼ inch	35 00	28 00
2½ inch	43 00	32 00
3 inch	48 00	40 00
3¼ inch	.....	47 00
3½ inch	60 00	44 00
4 inch	75 00	56 00

Waste Materials Remain Unchanged; Unsettled

WASTE MATERIALS at present are rather quiet and not much business is offering. The holiday season and

MUELLER

Self-Closing Basin Cocks

(Patented)

EXTRA PATTERN

MUELLER self-closing work requires but little more effort to operate than ordinary compression work and on this account its use is not objectionable even in private homes.

Individual inspection of every cock insures a standard of excellence embodied in all lines of MUELLER manufacture.

A1508
Code—*Arbutus*

The closing is actuated by a phosphor bronze spring, which has permanent elasticity. The tension of this spring will close against 175 pounds water pressure, yet it is easily operated on account of its roller bearing construction.

Just a few points of this service plus Basin Cock are:—

Seat washer can be replaced in but a moment's time. Unscrewing body cap, releases all working parts in one assembled unit.

Malleable Iron Locking Washer locks cock immovably on the lavatory in any position desired.

Made of high-grade red brass with careful attention to coring, machining, polishing and nickel-plating.

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

H. MUELLER MFG. CO., LTD.
SARNIA -- -- CANADA

yearly stock-taking period are said to be the chief causes. The price tendencies, however, nearly throughout the list are of a firm nature. In the opinion of some of the best informed, the future conditions are rather unsettled. Some look for almost anything to develop after the new year is properly ushered in. The following are the present price quotations:

DEALERS' BUYING PRICES

Pipe scrap	10 00
Stove plate, per ton	17 50
No. 2 busheling	11 00
Yellow brass	0 10
Red brass	0 15¾
Light brass	0 07
Scrap zinc	0 06
Heavy copper	0 17
Wrought iron, No. 1, per gr. ton	14 00
No. 1 machinery cast	22 00
Heavy melting steel	14 00
Old rubbers, boots and shoes	0 06
Overshoes, lumbermen's rubber boots	0 04
Bicycle tires	0 01½
Automobile tires	0 03
Tea lead	0 03½
Heavy lead pipe	0 05¾

Wrought Iron and Steel Pipe Remains Unchanged

PIPE STEEL AND WROUGHT IRON is holding at a firm price, with no immediate higher prices expected for some little time at least. Pipe generally is scarce and manufacturers believe a shortage throughout the entire year of 1920 will be experienced. At the present time, skelp is very hard to procure. Export business is being offered in considerable volume. Manufacturers and jobbers are of the opinion that all should bear in mind the difficulty of procuring supplies, and while it may not be the best of policy to carry heavy stocks, it is necessary not to be caught with too little stock. The following are the present quotations:

WROUGHT PIPE

Price List No. 42, Dec. 9, 1919.

Standard Buttweld

	Steel		Gen. Wrot. Iron	
	Blk.	Gal.	Blk.	Gal.
	Per 100 feet			
⅛ in.	$6 00	$8 00	$....	$....
¼ in.	4 65	6 78	5 13	7 26
⅜ in.	4 65	6 78	5 13	7 26
½ in.	6 16	7 74	6 84	8 42
¾ in.	7 76	9 89	8 68	10 81
1 in.	11 48	14 62	12 84	15 98
1¼ in.	15 53	19 78	17 37	21 62
1½ in.	18 56	23 65	20 76	25 85
2 in.	24 98	31 82	27 94	34 78
2½ in.	39 49	50 31	.....	.....
3 in.	51 64	65 79	.....	.....
3½ in.	65 78	82 80	.....	.....
4 in.	77 94	98 10	.....	.....

Standard Lapweld

	Steel		Gen. Wrot. Iron	
	Blk.	Gal.	Blk.	Gal.
	Per 100 feet			
2 in.	$ 27 94	$ 34 78	$ 31 64	$ 38 11
2½ in.	40 66	51 48	46 51	57 33
3 in.	53 17	67 32	60 82	74 97
3½ in.	66 70	83 72	75 90	92 92
4 in.	79 03	99 19	89 93	110 09
4½ in.	88 00	113 00	114 00	138 00
5 in.	103 00	132 00	132 00	161 00
6 in.	133 00	171 00	172 00	209 00
7 in.	175 00	224 00	223 00	271 00
8L in	184 00	235 00	234 00	285 00
8 in.	212 00	271 00	269 00	328 00
9 in.	254 00	324 00	323 00	393 00
10L in.	235 00	301 00	299 00	365 00
10 in.	303 00	387 00	385 00	470 00

Terms, 2% 30 days, approved credit.
Freight equalized on Chatham, Guelph, Hamilton, London, Montreal, Toronto, Welland.

Cotton Waste Quiet; Price Remains Steady

WASTE.—The demand for waste has materially slackened and present business is reported seasonably quiet. The outlook for the new year is very bright. Jobbers state they are looking for one of the best years in their history. The present prices are holding at the following quotations:

WASTE

Cream, Polishing	0 21
White—	
XXX	0 18
XX	0 16¾
X	0 15¾
XC	0 13½
Japanese	0 13
XXX Extra	0 19
XX, grand	0 17¾
XLCR	0 16½
X Empire	0 15¼
X Press	0 14
Colored—	
No. 5	0 13¾
No. 1	0 12¾
No. 7	0 11¾
No. 1A	0 10¾
No. 1B	0 09¾
Fancy	0 16
Lion	0 13½
Standard	0 12
Popular	0 10½
Keen	0 09

Above lines subject to trade discount for quantity.

Conductor Pipe Firm; Advance Expected

CONDUCTOR PIPE.—In spite of the great scarcity of galvanized sheets, conductor pipe and eavetrough remains unchanged. Manufacturers claim they were fortunate in having large quantities made up before the sheet situation developed to such an extent, as at present reported. However, these stocks are nearly exhausted and higher prices are looked for in the near future, it is stated. The following are the quotations:

PIPE (Conductor)
Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10- ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

F.o.b. Toronto, Ottawa, Oshawa.
List less 10%.

Soil Pipe Firm; May Soon Advance

SOIL PIPE.—Although sales have seasonably slackened, a very good demand is reported. Prospects for the new year, it is stated, were hardly ever better, and, it is believed, that the demand will be greater than the output. An advance in price seems inevitable, it is stated. The following are the present quotations:

Medium and extra heavy soil pipe, 2, 3 5 and 6 in.	10%
Medium and extra heavy soil pipe, 4 in.	15%
Medium and extra heavy soil pipe fittings, 2 in. to 6 in.	25%
8 in. extra heavy pipe and fittings	5%

PIPE FITTINGS

Cast iron fittings	10%
Plugs	22%
Bushings	25%
Unions, ¼" to 2½"	40%
Do., ⅛", 3" and larger	35%
Dart unions, ¼-inch to 2-inch	25%
Do., 2½-inch and larger	15%
Nipples, up to 4 inch	70%
Do., 4½-inch and larger	60%
Do., running thread 4-in. and under	40%
Couplings, 4-in. and under	35%
Do., 4½-inch and larger	15%

MALLEABLE FITTINGS

	Black	Galv'd
Malleable Fittings, Class A, lb.	$0 57	$0 72
Do., Class B, lb. net	0 25	0 35
Do., Class C, lb. net	0 19	0 25

Enamelware Prices Are Unchanged; Scarce

ENAMELWARE.—The huge demand recorded for 1919, according to present indications, may look small, compared to that of the expected one for 1920, it is stated. It is believed that the present scarcity will automatically relieve itself and that by spring manufacturers will again be able to give fair delivery. The following are the present quotations:

Bath tubs, roll rim, 4. 4½, 5 feet, 24 to 30 in. wide	$37 05
Bath tubs, 5½ ft.	41 20
Lavatories—	
17x10" Apron F139 or P4045	11 05
18x24" Apron F154 or P3845 or P3847.	17 00
18x21" Apron F169 or P4205	12 70
18x21" Roll rim F197, F199 or P4655-6	11 10
17x19" Roll rim F241 or P4345	9.05
Sinks, roll rim, 18 x 30 in.	16 60

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Plumbers' Compression and Brass Work Unchanged

COMPRESSION WORK.—Plumbers' compression and brass work is holding at an unchanged figure. The copper market seems more or less unsettled and conditions vary to such an extent that it is hard to say, even from day to day, just what will take place. A change in price would not be out of line, owing to the general conditions of all manufacturing plants using the basic metals. The following are the present quotations:

Compression work, standard	28%
Fuller work, standard	34%
Bath cocks, compression	30%
Bath cocks, Fuller	34%
Flatway stop and waste cocks, standard	32%
Roundway stop and waste cocks, standard	32%
Brass steam cocks, standard	Net List
Globe, angle and check vales, standard	5-9%
Do., removable disc	7-10%
Radiator valves, standard	15%-23%
Do., removable disc	40-46%
Basin Cocks	
No. 0 and 1, Fuller pattern	34%
Compression	23%
Quick opening	34%

Sheets and Plates Firm; Present Prices Holding

SHEETS AND PLATES.—The serious shortage of this commodity continues to be keenly felt, although some state that sheets are coming in better and that the size of shipments are stated to be even larger than was hoped for. Booked orders and future business seem out of the running. At least none of the mills are encouraging this class of business, it is stated, owing to the enormous booking still on hand of the 1919 variety. However, the demand for 1920 is expected to be of such a persistent nature, that manufacturers will find some way of catching up with their orders, it is stated, and all concerned are hoping the new year will be one of industrial harmony and peace.

(Continued on page 37)

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Each and every Flat Link Chain is "proof-tested" to two-thirds of its listed catalog strength in a standard tension machine. To each chain so tested is attached the Gray Leaden Seal, illustrated above, and every Flat Link Chain leaving our works *must* bear this seal—the Proof of Quality—as evidence that it has passed our standardized "proof-tests."

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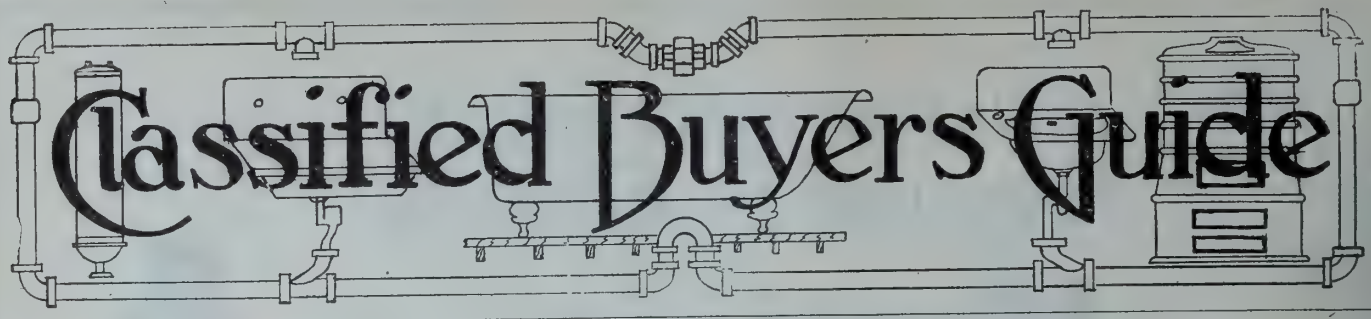

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Quaturn Double Pantry Cock

No. A1700

With gooseneck spout, China Index Handles and is Nickel-Plated.

Bottom of flange to spout outlet 10 inches. Centre of Cock to centre of spout outlet 3½ inches. Width of Faucet over all 6½ inches. Bottom of flange to end of tail pieces 7½ inches. Centre to centre of tail pieces 1¾ inches. Diameter of flange 2⅝ inches. Diameter of shank 1.05 inches (¾ inches I.P.S.)

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THE WORD TRIMO

Stands for good tools made by the Trimont Mfg. Co., which are the following :—

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The Trimo Chain Pipe-Wrench
The Trimo Monkey Wrench
The Trimo Pipe Cutter (Hand)

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Trimont Mfg. Company

Roxbury (Boston), Mass.

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There is a long, long line of Wolverine Products and a long, long rosy trail of profits for the dealer who handles them. For lack of space we can show but two here. See Wolverine Kantleak Floats, Wolverine Coil Furnaces, etc. Write for catalogue and discounts.

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FOUNDRY

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Soil Pipes and Fittings are of pleasing design and good finish. They look good and they **are good**

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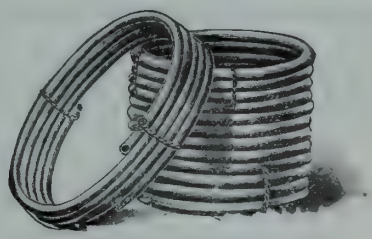
We manufacture ONLY white metal alloys. Therefore by using our products you get the quality which goes ever with specialization.



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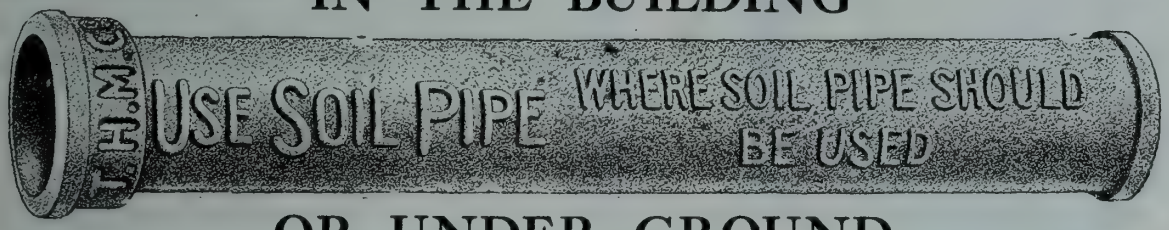

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By R. C. McWane

A Book of the Greatest Value to Every Sanitary Engineer

Every sanitary engineer should possess this book. It deals with pipe making of all kinds, cast iron, wrought iron, steel, wood and tile pipe. It is valuable because it gives a true idea of how much service pipe should give under various conditions.

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BLACK and GALVANIZED SIZES, 1/8 IN. TO 4 IN.

All our pipe thoroughly inspected, tested to 600 lbs. hydraulic pressure and branded.

All Sizes of NIPPLES (Black and Galvanized)

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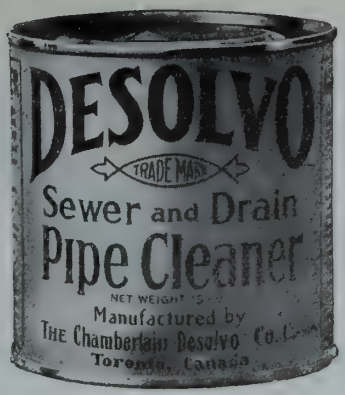

A Few Facts About DESOLVO

You have one of the best helpers you can secure when you have Desolvo ready to hand.

Desolvo is the only pipe cleaning compound which mixes readily with cold water.

Desolvo will do work quicker and with less effort and expense than any other method.

Desolvo is on sale everywhere and is very easy to carry around.

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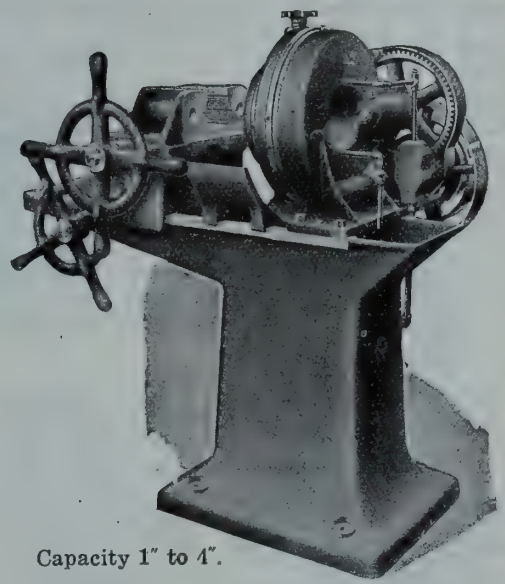

Capacity 1" to 4".

The Hall Simplex Improved No. 4 Pipe Machine

Easily operated by unskilled help. An ideal machine for the plumber, the steamfitter or the jobber. Will thread pipe as short as 4½ inches. Let us mail you full information regarding this money saver together with catalog covering our complete line including:

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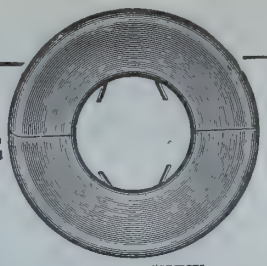
BRANTFORD, CANADA

OPEN VIEW
NO. 10-A

The CEILING PLATE that's better



TOP VIEW
NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾" WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.

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Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

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Hinged Pipe Vises *Pipe Cutters*
Pipe Threading Machines

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COMBINATION
COLD ROLLED STEEL
Floor and Ceiling
PLATES

Carried by the leading supply houses

No. 15

Puts just the right finish on that heating job

Send for catalog of complete line of "B. & C." goods.

No. 1 Valve

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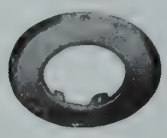

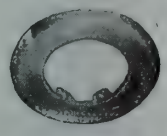

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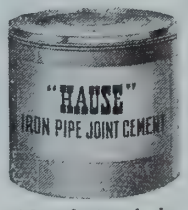
Southington, Conn., U.S.A.
The Old Original Company

"HAUSE" PIPE JOINT CEMENT

For steam, water, air, oil, gas, gaskets, etc. The cement that cements. Sets like gum. Allows no leaks.

The Great Value of "HAUSE PIPE JOINT CEMENT" lies in its peculiar chemical properties which permits of its hardening and expanding after the joints are made up. In making up joints it has the same effect as a lubricant on the best graphite, and while the joints may be made and broken readily, a perfectly tight joint is maintained at all times. Comes in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans, 100-lb. barrels. Manufactured in ready mixed and powder form. Ask your jobber for prices, or write us direct.

Made in Omaha, Neb., U.S.A.



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A trial of the goods will prove this claim.

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With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

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but not all of them possess that neat appearance, combined with strength and stability, which characterizes

KERR IRON BODY GATE VALVES

Specify KERR'S (KEYSTONE) Iron Body Gate Valves on your next order, and let us prove what we claim for them.

Our Catalogue No. 5 tells all about them. It is yours for the asking. Write us to-day.

Approved by the Fire Underwriters' Association, and Registered by Boiler Inspection Departments of Ontario, Saskatchewan and Alberta.

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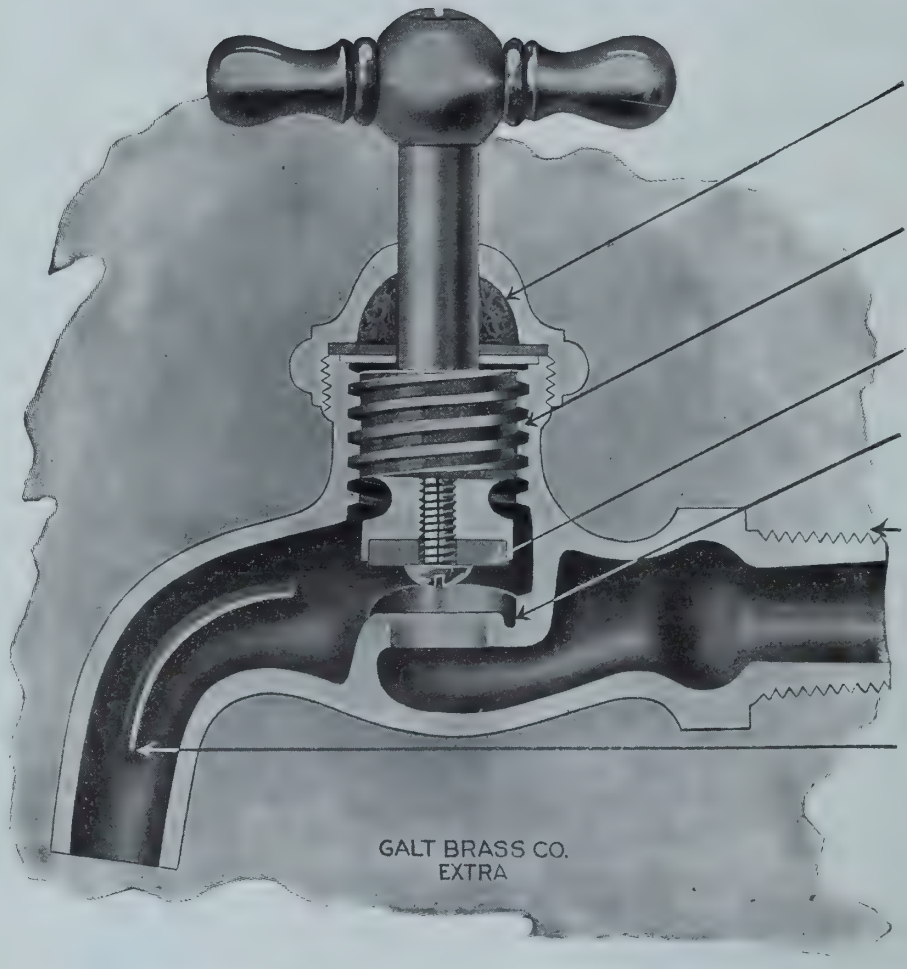
"PERFECTO"

(Registered Trade Mark)

BRASS BIBBS



Well Machined—Tested—High Grade

It pays a plumber to gain the reputation of using Perfecto Bibbs and Cocks, and "Perfecto" Brass Goods of all kinds. Quality counts in the long run

"Perfecto" Brass Goods are machined under a gauge system by which the machinists' tools are constantly subject to inspection and correction. "Perfecto" Brass Goods are as near absolute accuracy as expert care can make them. They'll make friends for the man that puts in the job.

Galt Brass Company Limited

Galt - Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, JANUARY 15, 1920 No. 2

Indifference to the Stop Cock!

You know what that means.

Ruin to the whole Steam System.

The loss of money and time to the client.

And the loss of the client's confidence in the sanitary engineer who installed the system.

It is worse than folly to pass on inferior stop cocks when Empire Steam Stop Cocks are available — and Empire Steam Stop Cocks always are available.

The factory test of the Empire Manufacturing Co., and our guarantee is behind the engineer who installs our stop cocks. Remember our guarantee has never failed.

A square client deserves Empire Steam Stop Cocks— they are the quality of stop cocks he expects from a reliable sanitary engineer.

Empire Manufacturing Co.
Limited

London and Toronto
Canada

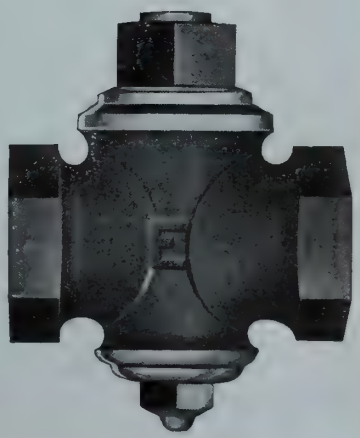


Plate A-810

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

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MANITOBA and NORTHWEST:
E. B. Plewes, 120 Lombard St., Winnipeg

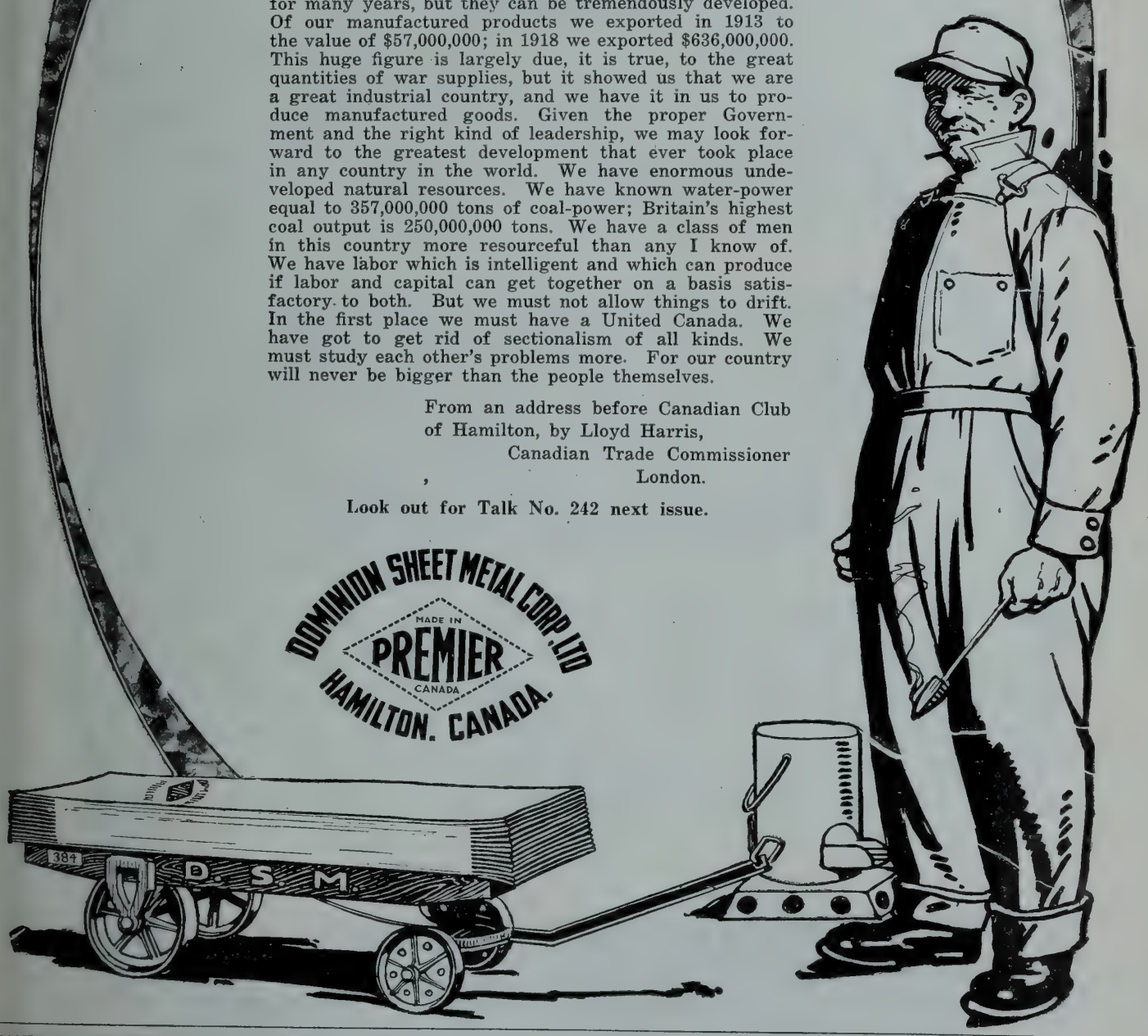
TINKER TOM'S TALKS.

No. 241

In the line of exportable assets we have, first, our agricultural products. Then our lumber business has been given a tremendous impetus. Our pulp and paper business is expanding enormously, being worth $100,000,000 this year. Our fisheries have remained stationary for many years, but they can be tremendously developed. Of our manufactured products we exported in 1913 to the value of $57,000,000; in 1918 we exported $636,000,000. This huge figure is largely due, it is true, to the great quantities of war supplies, but it showed us that we are a great industrial country, and we have it in us to produce manufactured goods. Given the proper Government and the right kind of leadership, we may look forward to the greatest development that ever took place in any country in the world. We have enormous undeveloped natural resources. We have known water-power equal to 357,000,000 tons of coal-power; Britain's highest coal output is 250,000,000 tons. We have a class of men in this country more resourceful than any I know of. We have labor which is intelligent and which can produce if labor and capital can get together on a basis satisfactory to both. But we must not allow things to drift. In the first place we must have a United Canada. We have got to get rid of sectionalism of all kinds. We must study each other's problems more. For our country will never be bigger than the people themselves.

From an address before Canadian Club of Hamilton, by Lloyd Harris, Canadian Trade Commissioner, London.

Look out for Talk No. 242 next issue.



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Doing Things

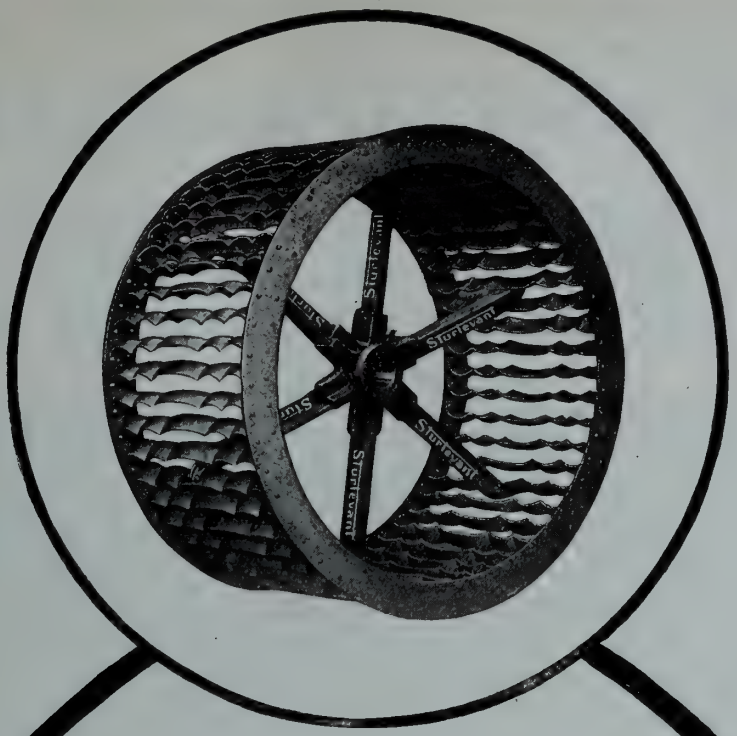
A Little "Straight Talk" to the Canadian Plumbing Trade

"DO IT NOW" has for some years appeared as a printed injunction in offices and stores until there is a danger that the good advice of the little cards — many of them now very soiled — has become a forgotten, matter of fact, affair more observed in the breach than in observance. "DO IT NOW" should be revived at this moment for the Canadian Plumbing Trade.

The plumber who is in business should be a salesman. If he has not cultivated, in the past, the art of selling, he should now begin to train himself; he must become more and more keenly alive to the opportunities for development which surround him. Many cases are found where the plumber is "too busy" doing small, unprofitable jobs, while with some study of local conditions he might easily secure large and paying contracts.

There is always a danger that if the business man does not take advantage of his local possibilities some larger or more enterprising concern from outside may step in and secure the contracts. It behooves each man to be up and doing, and particularly at this season of the year to anticipate the opening of spring activity, and plan well his season's campaign. *Do it now*—Quality—Efficiency—Service.

THE CANADIAN BRASS CO.
LIMITED
GALT, ONTARIO



HANDLE MORE
HEATING AND VENTILATING
BUSINESS!

BUILDING construction is the barometer by which your profits are determined. The war is over and greater attention is being given to the construction of schools, churches, theatres, restaurants, factories, than for many months. There is a big opportunity for you to realize splendid profits by handling more heating and ventilating business. Represent the manufacturer who builds what the consulting engineer and the architect specify.

Sturtevant
(TRADE MARK)

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are recognized nationally for efficiency and dependability of design, for excellence of materials, and for skilled manufacture. These systems are adaptable to buildings of all descriptions and all conditions of service. They are advertised nationally in the *Saturday Evening Post* and *Literary Digest*. There is a distinct advantage in associating yourself with a company recognized by millions of people.

60 Years of Leadership Means Security to You

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SALES OFFICES: TORONTO AND MONTREAL

DODD HEATING SYSTEMS
LIMITED

HEATING ENGINEERS
Manufacturers of the

DODD PATENTED GAS-FIRED BOILER
Will REMOVE to

504 SPADINA AVE. (at College St.) TORONTO
Early in the New Year.

The new office and salesroom will be heated by the DODD "GAS FIRED" BOILER—and steamfitters are cordially invited to call in, to see the boiler at work under normal conditions—at any hour—morning, noon or night. This change is made on purpose to permit the steamfitter to become better acquainted with our wonderful boiler.

DODD HEATING SYSTEMS
LIMITED

Note the New Address: **504 SPADINA AVENUE, TORONTO**

It Increases Customers' Confidence in All Your Lines When You Handle

ANTHES SYPHONS

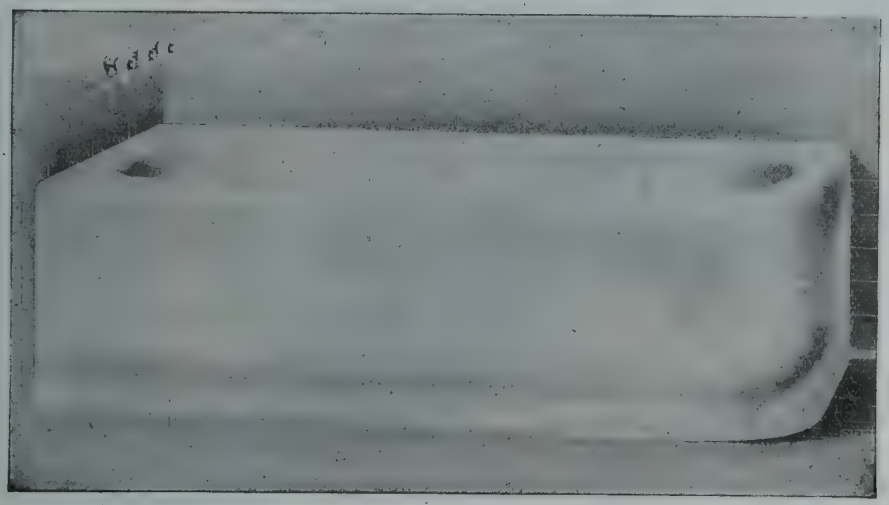
because they give satisfactory service. Anthes are made in one piece; seamless, and operate entirely on natural laws.

We will furnish you with Sewage Disposal Blueprints on request.

Anthes Foundry Co., Limited
Toronto and Winnipeg

"Standard"
"Perfection" Built-in Baths

Made in One Piece Enamelled All Over



These Baths represent the last word in design and finish, and are made to build into Right or Left Hand Corner or into a Recess.

The "Perfection" Built-in-Bath is only 17½ inches high, therefore convenient. It builds into walls and floors, the absence of all dust-collecting cracks and corners meaning bathroom sanitation.

Made in 5 and 5½ foot sizes.

Illustrations on request.

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Limited

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325 Eighth Avenue West

Vancouver:
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"MADE IN CANADA"

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by the manufacturers of the famous "Little Giant" Die

A Quality Pipe Wrench—a pipe wrench you can depend on. One that grips tighter as the strain increases and positively will not slip.

"Wells" Pipe Wrench is

"Forged for Service"—**it will last a lifetime, yet it costs no more than the ordinary kind.**

Ask your dealer for it or order direct from Galt.

Little Giant

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Company of Ltd. Galt, Ontario

Canadian Plant of the Greenfield Tap & Die Corp.

CANADA

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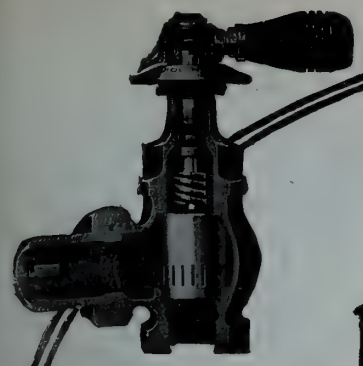
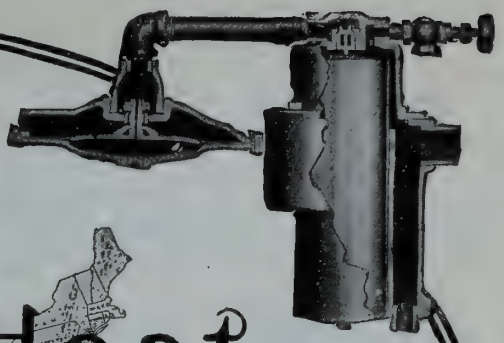
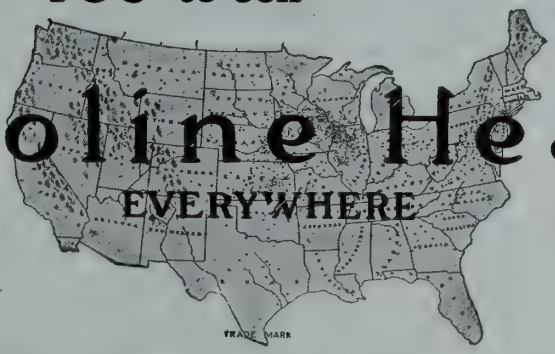




A GOOD LINE
of Equipment for
YOU to sell—



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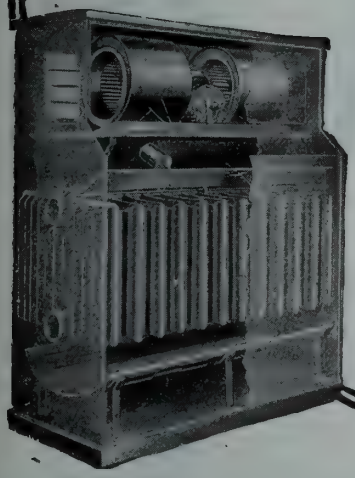

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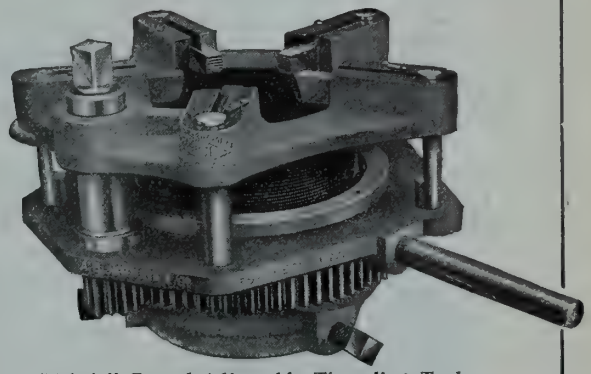

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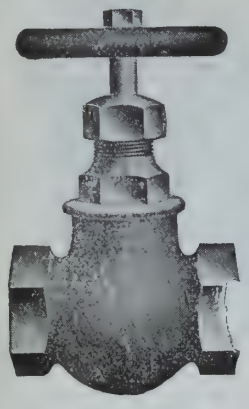

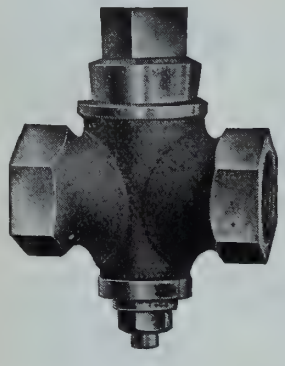

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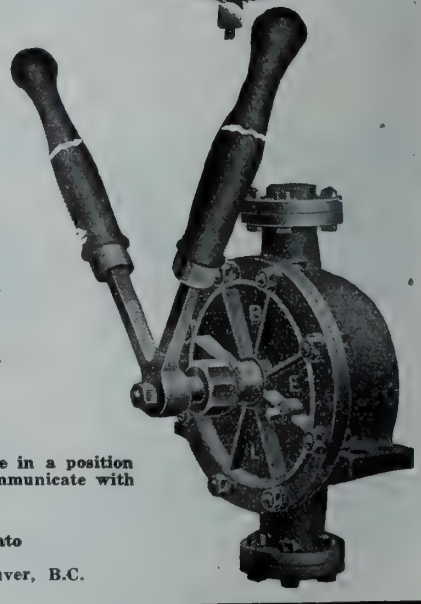

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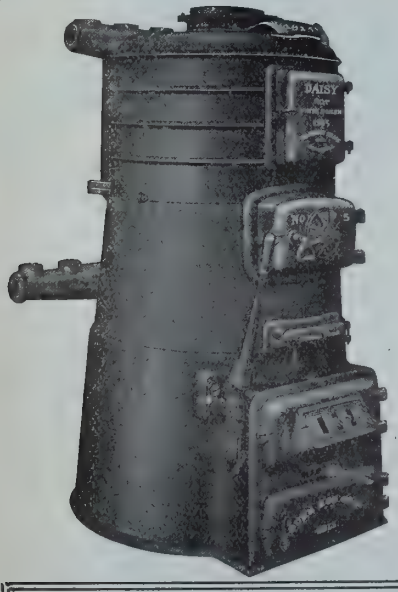

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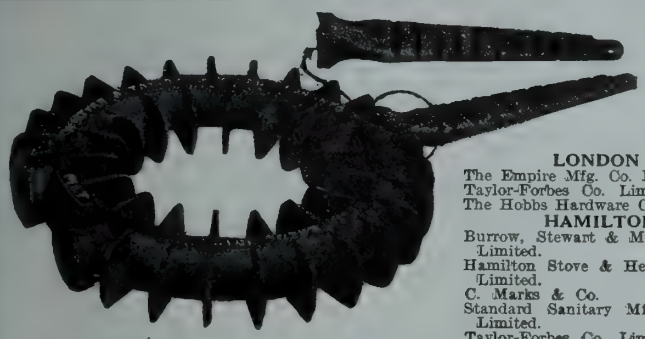

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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 — PUBLISHED TWICE MONTHLY

Vol. XIV. — TORONTO, JANUARY 15, 1920 — No. 2

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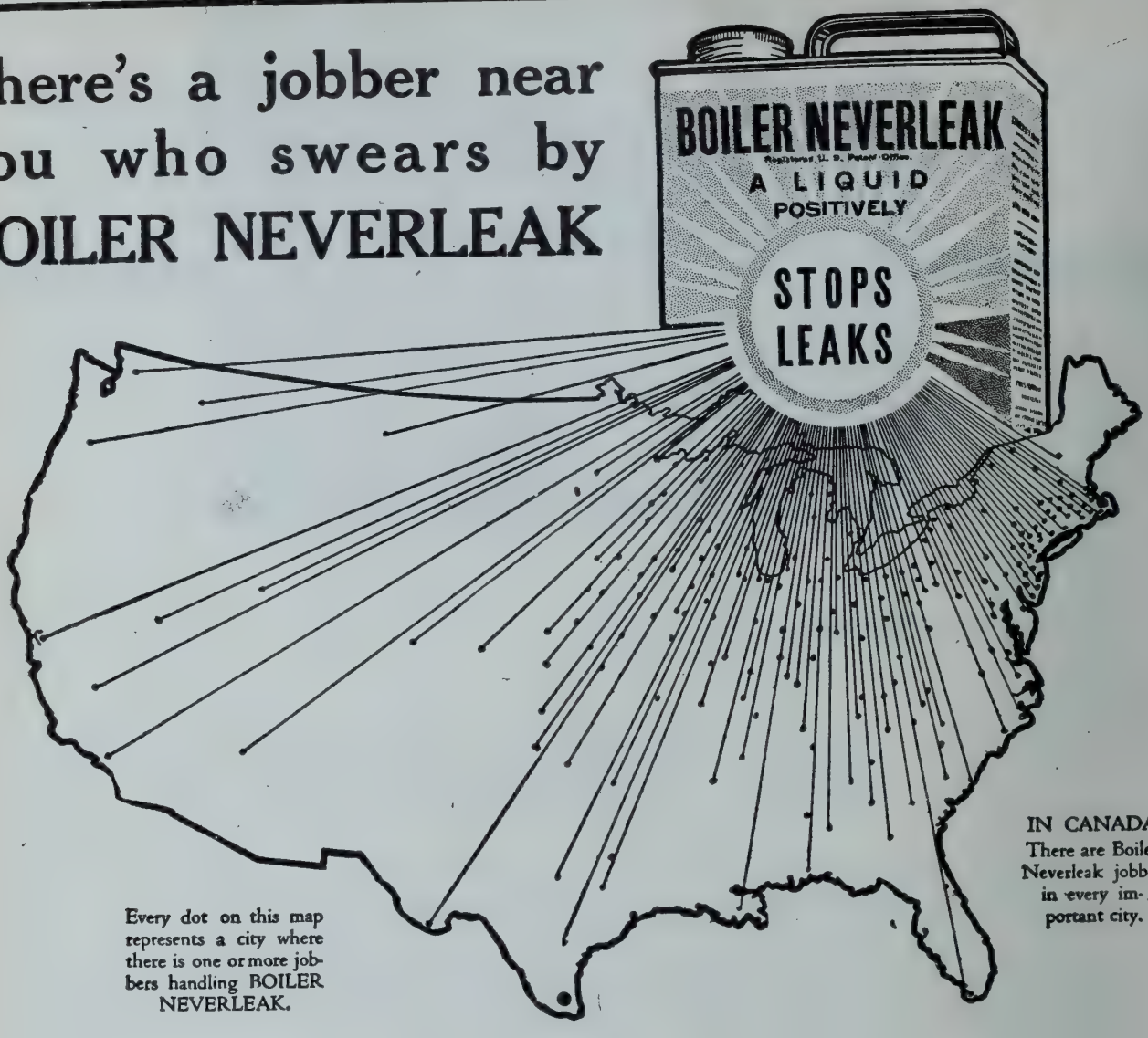
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Published First and Fifteenth of Month

Vol.. XIV TORONTO, JANUARY 15, 1920 No. 2

Board's Order is Indefinite

Probe is to be Made Into Prices of Builders' Hardware and Plumbing Goods —Returns Must be Made by March 31st—Cost and Selling Price Must be Given

OTTAWA—The Board of Commerce, in a judgment issued and signed by Judge Robson, chairman, and Commissioners O'Connor and Murdock, declares that building materials of all kinds, plumbing fixtures and building hardware are necessaries of life under part two of the Combines and Fair Prices Act.

Prior to March 31, 1920, all dealers within Canada in such materials must deliver to the secretary of the board a statement of cost and selling price of all such articles and the date as of which such prices are reported. Any dealer or dealers holding or offering for sale within Canada such building materials will be deemed to have committed an offence under the Combines and Fair Prices Act if an unfair profit is made by him or them.

The Order

The order reads:

"It is hereby declared that building materials of all kinds ordinarily or necessarily used in the construction or sanitary completion of houses for homes, including plumbing fixtures and building hardware, are necessaries of life under part two of the Combines and Fair Prices Act, 1919. This special regulation is made pursuant to section 16 of said Act.

Report Before March 31

"It is further ordered that prior to the 31st day of March, 1920, all dealers within Canada in such building materials to deliver to the secretary of the Board of Commerce of Canada at Ottawa a statement showing the cost price to them of each article or class of building material being sold or offered for sale, with their selling price thereof to a contractor or other individual for use in the building of houses, and stating the dates as of which such cost and selling price is represented. And it is declared that any dealer or dealers holding or offering for sale within Canada such building material will hereafter be deemed to have committed an offence under the Combines and Fair Prices Act, 1919, if an unfair profit is made by him or them."

THE latest order of the Canadian Board of Commerce is directed at the hardware, plumbing and building trades, and, if carried out definitely, is bound to cause no little trouble, and considerable dissatisfaction. It would appear that the information asked for in the order is of such a nature as to make it practically impossible for the plumber to furnish the data called for. Only a sanitary engineer, jobber, or manufacturer, for instance, is capable of comprehending the comprehensiveness of a plumbing stock, made up of its thousands of distinct items, and broken up again into an almost infinite variety of sizes, patterns, shapes.

Vagueness of Order

At the same time the order is not at all clear, and a general enquiry by SANITARY ENGINEER of hardware manufacturers, jobbers, retailers, and plumbers, reveals the fact that few comprehend the meaning of the order, and are paying little or no attention to it. Therefore, and until the order is explained in detail, interviewed parties, in most cases, decline to make comment.

Up to the present time the Board of Commerce has not directly notified hardware merchants or plumbers of the order and many of them are rather in the dark as to what is expected of them. Just what is to be done in this respect does not yet seem clear.

Has Not Been Advised Yet

"I have not yet been advised that there is to be any public hearing in Toronto," said Maj. Duncan, who is in charge of the Ontario office of the Board of Commerce. "One thing the men in the trade may be satisfied about is that it is not the intention of the board in any way to interfere with legitimate business. It is the board's desire to obtain facts and if any of the hardware merchants or men in the plumbing business have information that will bear on the investigation we want it. If there is any profiteering the board wants to find it out and will deal with the matter."

How It Reads

An official copy of the order as received by SANITARY ENGINEER from the Board of Commerce headquarters at Ottawa and reproduced above indicates that the investigation will concern the prices of building materials alone.

Whether the Board of Commerce will notify hardware merchants and sanitary engineers regarding the statement required by March 31 was not stated.

Plumbers' President Says

Captain D. A. Bethune, president of the Montreal Master Plumbers' Association, stated that he was perfectly willing, at any time, to impart information as to the cost and selling prices of their goods. The cost of doing business, he states, has become so high that, even though much higher prices have to be charged, the net profit will not amount, in the long run, to more than three to five per cent.

Cannot Be Bought

"There is little or no material in the market at present to be bought," said Capt. Bethune. "All stocks are going

down, and nothing, of some lines, is being manufactured. It is very difficult to get radiators, for instance, where we used to be able, always, to have access to big stocks. Why, scrap iron is now selling at $30 per ton, a very high price. Prices are made higher through increased freights, wages, etc. And, as far as I am concerned, I would be glad, and perfectly willing, to give all the information I have."

Many expressed their entire ignorance of such an order, and could, therefore, not speak on the merits, or otherwise, of the case.

"It so happens," said E. H. Russell, of London, Ont., one of the directors of the Ontario Society of Domestic, Sanitary and Heating Engineers, "that I know nothing about the Board or its work, and I am unashamed in the admission. In my light and airy way I sometimes think it would be an excellent thing for the country if the Premier would prevail upon the rest of the Government to join him in his projected joy ride, I would add officials, also, only I am mindful of a shortage in ships (and we could not bribe the captains to lose them all), in order that you may not feel that Ottawa is first prize man in knowing how not to do it. Since I have succeeded so well in not answering your query, perhaps you will accept a query from me. Having read that sugar was abundant, I directed the joy of my life (my wife) to purchase a bag forthwith, at the price of $12.75. We have been in possession of all this sweetness two weeks; the price per bag is now $17.00 to $18.00; will you tell me what occurred to cause this gentle aviation? Would you advise me to become a sugar broker and abandon the study of pipes, or, seeing that I did not purchase a ton, would you advise me to examine my ears?

"I regret being unable to make any statement regarding the Board of Commerce, but I think, on general principles, they would achieve great merit, if they would considerately get lost, abandon Canada to its fate, as it were, and leave us our moderate prices."

"The Board of Commerce has apparently accomplished some good work already and is an institution which can prove of great benefit to Canada if good judgment is used," said Thomas A. Jones, of London, Ont., vice-president of the Cowan Hardware, Limited. "The members of this board must, however, remember that they are not appointed to restrain legitimate trade but only to put the check on profiteers.

Are Not Highwaymen

"The business men of Canada are not highwaymen and are only in business for a fair and legitimate profit and nothing should be done at the present time to hamper anyone who is willing to work whether it be behind the counter or anywhere else.

"As to the recent ruling about hardware, it is so indefinite as far as newspaper reports go that I am unable to express an intelligent opinion until further information is vouchsafed by the board. This, however, I know and can vouch for and that is that every hardwareman in London will be only too glad to furnish all information in his possession without fear or favor and that it will undoubtedly be found that their profits are very fair and reasonable."

Difficult to Get At

There is this to be said regarding the various lines of hardware making up what is styled "Builders' Hardware," and that is, that the variety is so extensive, the patterns so numerous, and the supplies of many goods so short, as to make an order such as this seems to be, under present conditions, somewhat inoperative.

For instance, a jobber may place an order for a gross of a given style of lock, and three, four, or six months later receive anywhere from a dozen to three or four dozen of the item, and at a price ruling at date of shipment. The maker has probably shipped another dozen or two out a week later, and at a new high price, and the jobber distributes to the retailer, and the retailer to the contractor, and all these items are priced, it may be, at different costs. As before stated, it is only a man who has spent a large portion of his lifetime in the hardware business who can comprehend the impossibility of meeting the requirements of an order such as has been filed, and which, it is almost safe to assert, will never become workable.

Will Not Work

There is no class of business which suffered more, on the average, during the period of the war, than that of the builders' and hardware trade. Building was at a standstill for four years. Retail, as well as wholesale hardware merchants, were stocked with hardware of this nature, for which there was no demand, or little, at any rate. And, in any case, as is well recognized, the average builders' hardware dealer has had to figure his costs pretty close, for the simple reason that competition has governed, for very many years, the return the dealer can get on, or over his landed cost.

One Retailer's View

"We usually have to name a bulk price on the hardware which we supply, giving the contractor a price of so much for the hardware required in a given building. We do not know what he is getting, and our experience has been that we have to always figure very close, and then, oftentimes, we cannot get the business."

This is an expression from one of the largest retailers of builders' hardware in Canada, a firm which represents some of the better or high-grade lines of hardware manufactured in Canada and the United States. And, it is almost safe to add that this experience is that of many of the retail firms doing business throughout the country. This informant feels, as will many others, that the proposal will not, and cannot be made to work.

Ending of the Steel Strike Will Not Affect Conditions

Telegram From the National Committee Did Not Come as a Surprise—Only a Small Percentage of the Workers Were Out at the Last

THOSE who are in closest touch with the trade state that the ending of the big steel strike will not in any way materially affect conditions at the present time.

The ending of the strike occasioned no surprise. As a matter of fact, as far as the Steel Corporation was concerned it was over weeks ago. While 367,000 men were affected when the walkout took place on September 22, the number who stayed out was comparatively small and of these a large percentage were of the foreign element which was blamed for the trouble, and which it is doubtful if the company wanted back at any price.

Committee's Statement

After an all-day session in Pittsburgh the National Committee sent the following telegram to the headquarters of the American Federation of Labor in Washington, to the heads of all international unions interested and to the organizers and field men in all strike districts.

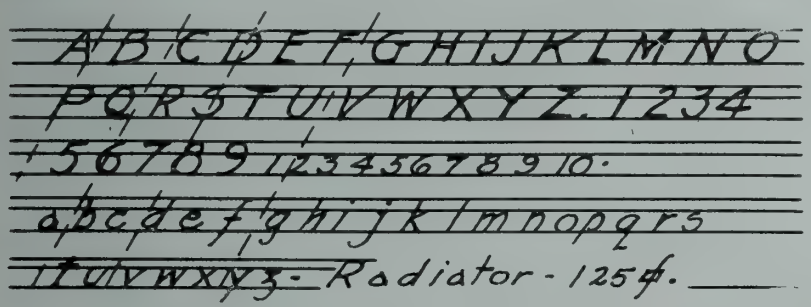
"The Steel Corporation," the telegram said, "with the active assistance of the press, the courts, Federal troops, State police and many public officials, has denied steel workers their rights of free speech, free assemblage and the right to organize, and by this arbitrary and ruthless misuse of power has brought about a condition which has compelled the national committee for organizing iron and steel workers to vote today that the active strike phase of the steel campaign is now at an end. A vigorous campaign of education and reorganization will be immediately begun, and will not cease until industrial justice in the steel industry has been achieved. All steel workers now are at liberty to return to work, pending preparation for the next big organization movement."

Drafting for the Sanitary Engineer

Practical Instruction in How to Make Neat Drawings—First of a Series of Specially Prepared Articles for "Sanitary Engineer" by Andrew Loucks—Keep This Whole Series—It is Valuable

ONE of the first things that the student of a drafting course should learn is that it is not necessary to have a great many tools to start in the practice work on a course of this kind. Even though he has nothing but a common writing pen and pencil he may start in by copying the alphabet that is given in this article.

If it is the student's desire to acquire such ability as will assure him of paid



employment in a drafting office, it is well that he devote considerable time in the practice of lettering and of tracing. If he is able to make a neat tracing he will have no difficulty in finding work in an office where he will have the advantage of seeing how experienced draftsmen do their work.

Lettering is Important

If the reader wishes to gain only sufficient knowledge of draftsmanship to enable him to make working drawings for his own assistance, he will find that even then, the time spent in the practice of lettering and of tracing has not been wasted; for he will find that the practice has developed neatness of rendering; the neatness begets accuracy, and the accuracy makes for speed.

Neat appearing drawings are never the result of time-destroying and finger-cramping labor; but rather the result of the draftsman's early training in exactness.

A poor drawing may be improved in appearance by neat lettering; the appearance of a good drawing is always destroyed by poor lettering. Thus of all the things necessary to perfect draftsmanship that of continual practice in the making of letters is to be recommended.

Has Been Simplified

At one time it was the custom of draftsmen to spend a great deal of time in the elaboration of the lettering of their plans. The old time draftsman did not consider his training complete until he was able to draw the letters of the many different styles. In recent years the mechanical draftsman has come to realize that ornamental letters have no place on a working drawing; so now he makes letters absolutely devoid of unnecessary lines.

Ordinary handwriting never looks well on a drawing. The letters that are shown in the accompanying alphabet can be drawn with a fair degree of speed.

Some draftsmen prefer to use vertical letters instead of those that are inclined, even though the vertical letters can not be drawn so rapidly as those having a decided pitch.

Will Be Developed

The student will find that in time certain characteristics will develop in his style of lettering. These can no more be avoided than can the individual character of the ordinary handwriting; and, in fact, are the very things that will increase his dexterity with the pen. All that we can do is to place an alphabet before the student and leave him to the development of his own style of lettering.

Lettering

The letters used on most one-eight scale drawings are 3/32 in. high for the capitals, and 1/16 in. for the "lower case" letters. A plan that is drawn to a larger scale should have correspondingly larger letters.

After the horizontal lines, which define the height of the letters, are drawn, guiding lines for the pitch of the letters should be made with the assistance of the 60 degree set-square.

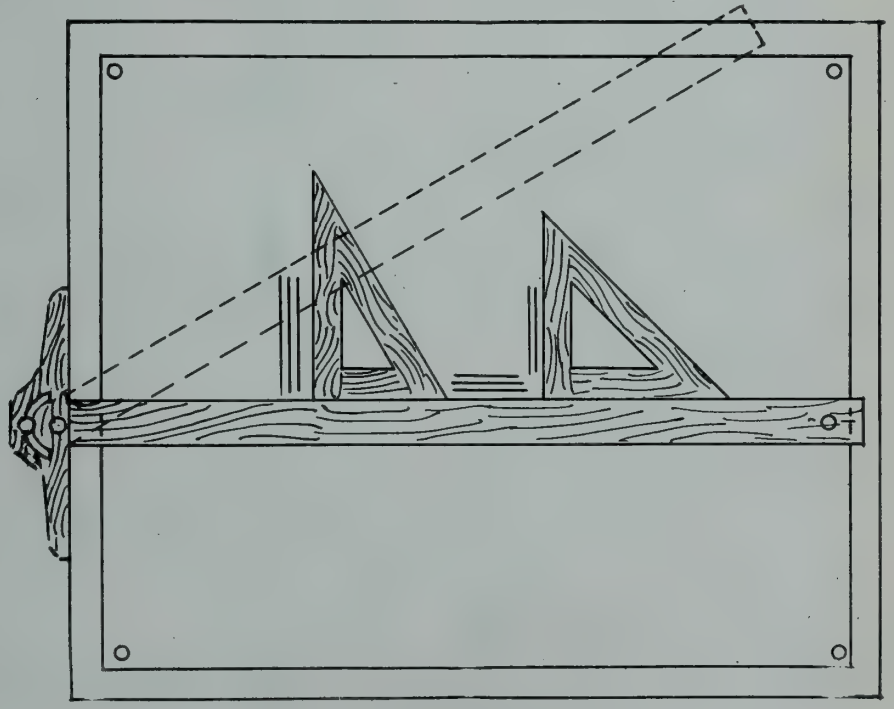
In the making of the letters, care should be exercised to see that both points of the pen are kept in contact with the paper. The more upright the holder is held, the finer will be the lines of the letters. When it is the draftsman's desire to make letters with a coarse line he should allow the holder to drop down until it is resting only slightly above the point of the thumb and palm. The student should try out the pen in different ways; but always keeping both points of the nib in contact with the drawing.

The Drafting Board

It is good policy not to buy a drafting board that is too small for general work. A board 30 in. wide by 36 in. long is the size recommended.

Drafting boards may be obtained having edges and reinforcing cleats of hardwood.

A cheap board is likely to twist; so it



THE DRAFTING BOARD.

is advisable that the student pay as much for a good drafting board as he can afford.

A board as large as we have here specified can be placed on trestles, or over the backs of kitchen chairs, so as to form a convenient table.

T Squares

We here show a T square set on the drafting board, with two squares resting against the upper edge of its blade.

The head of the T square is to be kept in contact with the left-hand edge of the drawing board (we are assuming that the draftsman is right-handed), and slid up and down. The blade of the T square is used for the ruling edge of parallel horizontal lines.

T squares are often fitted with a moveable head, so that parallel lines that are not at right angles with the edge of the board may be ruled. The dotted line on the drawing indicates how the blade may be swung when attached to a moveable head. It is well to have one of the heads of the square fixed, and generally the side with the fixed head should be used.

T squares are often edged with ebony or celluloid.

Set Squares

Set-squares, also called triangles, are used in the ruling of vertical and of oblique lines. The squares commonly used are such as those shown on the drawing. They may be of wood, steel, or celluloid. Squares made of wood are not so likely to smudge the drawing as are those made of celluloid or steel. Parallel lines may be ruled with the aid of two set-squares; one set-square is held stationary and the other set-square slid against the edge of the stationary square.

Compasses

Compasses are the instruments used in the drawing of circles, or of the segments of circles. One leg of the instrument is slotted so that a pen or pencil point may be attached to that leg. The other leg is fitted with a needle point. An extension bar is provided, so that circles having long radiuses may be drawn.

Each leg of the instrument is jointed, so that the pencil or pen point may be held perpendicular to the drawing.

Compasses usually have a tension adjusting screw, set at the junction of the legs, and which can be adjusted to suit the convenience of the draftsman.

Compasses should be operated with one hand only; using the thumb and index finger to close the instrument; and the back of the second finger, together with the fronts of the third and fourth, to open it.

Dividers

Dividers are used for spacing off distances upon a drawing. They are sometimes provided with pen and pencil ponts, so that they may be used as compasses; but as a greater rigidity is convenient in the joints of dividers than in the joints of compasses, it is not good practice to use the same instrument as a divider and as compasses.

The sharper the points of a divider, the more accurate will be the work; but, at the same time, care should be taken to see that the sharp points do not cut into the paper.

Bow-Pens and Bow-Pencils

These instruments are used when small circles are to be drawn. The legs of the instrument are opened or closed by the turning of a small screw.

Pens

The pen used in lettering should have a perfectly straight and plain holder.

RULING PEN

A holder 5/16 in. in diameter will be found a convenient size.

The pen point, or nib, should be equivalent to a Gillott No. 303. A point that is convenient for use in making large letters is a No. 40 Gage—"Silver series."

Pencils

Mechanical draftsmen generally use pencils ranging in the degree of hardness from one H to four H. Very accurate work may be done with the four H pencil; but the student will find that a drawing made with so hard a pencil will be "wiry" in appearance. He will also find that it much more pleasant to work with a soft pencil; and if he keeps turning the pencil so that the lead is worn down evenly he will find that quite as accurate work may be done with a soft pencil as with one that is hard.

Some draftsmen prefer to use two pencils: One sharpened to a point, and used for the purpose of marking points on the drawing; and the other sharpened with a chisel edge, and used in the ruling of lines.

The pencils should be kept well sharpened; but it is not necessary that the draftsman be continually sharpening the lead. If the pencil is turned so that the lead is uniformly worn, it can be used until the lead is almost down to the wood.

Papers

Until the student becomes familiar with the drawing instruments, ordinary Manila wrapping paper will be good enough for pencilled work. Later on, when the drawings are to be inked, a cartridge paper should be used. Manila paper has a surface too soft to resist the cutting action of steel pens. An ordinary pen will cut into it in such a way that the ink will spread. A bond paper, such as that used for business letter paper, has a fairly good surface for inked drawings.

Thumb Tacks

Thumb-tacks, sometimes called drawing pins or push pins, are used for pinning the paper to the drawing board.

These tacks should have heads with a diameter of, at least, 7/16 in., and points rather short. The reader should note that it is not the point of the tack that holds the paper in place, so much as it is the head; so when pressing a tack down, be sure to see that the head bears evenly on the paper. The head of the tack should not be very thick, especially if the tacks are placed where the blade of the T square must pass over them.

Ink

Prepared black India ink may be obtained in small bottles. The cork of the bottle is fitted with a quill for use in the filling of the ruling pen.

Inks of various colors may be procured in the same type of bottle.

Cut of Ruling Pen

The ruling pen is used for the inking in of straight lines.

When this pen is being used, both points must be held in contact with the paper. The pen is held lightly against, and run along, the straight-edge of the T or set square. It should be very slightly inclined toward the direction in which it is being drawn.

All horizontal lines should be ruled first; then the vertical lines; and last of all the oblique lines.

(Continued on page 32)

Test Yourself With These Questions

Answer Each One of Them and Then Check Up the Results—You May be Surprised to Find That There Are Weak Points in Your Business That You Have Never Considered—Stop All Leaks and Conserve Your Profits

(All rights reserved. Wm. A. Hersey, Robt. H. Ingersoll & Bro.)

PERHAPS *there isn't a single screw loose in your business.*

The question is—are you sure there isn't? Your position toward your business should be the same as that of a doctor towards his patient. A doctor examines his patient and finds out what is wrong and then prescribes a remedy. You, on the other hand, should examine your business—every so often—from an impartial viewpoint. Try to find your weak points and when you find there is anything wrong, or that there is anything that you are not doing that you should do—then do all you can to remedy it.

The following list of questions was made up after a long and careful study of the failings of many merchants. Ask yourself each one of these questions. Check those to which you cannot answer "yes." After you have completed the list, begin immediately to remedy the points on which you are lacking. Remember, by ignoring your weak points you are not harming anyone but yourself. It is just the same as if you would go to a doctor and then ignore the remedy he prescribes.

BUYING AND SELLING

1 Do you allow your personal tastes to influence you too much in your buying? .....

You should analyze your customers' wants and not your own preferences. People in each community have certain likes and dislikes which must be taken into consideration if you wish to secure all their patronage.

* * *

2 Do you overcome sales resistance by pushing nationally advertised goods? .....

Advertised lines are easier to sell than non-advertised lines. And it is the easier selling lines which help you to turn your stock oftener.

* * *

3 Have you studied all the goods you handle to know the selling points of them? .....

To secure selling points of the lines you handle, it is a good idea to read the manufacturers' literature on them—trade newspapers—newspaper articles, etc. These are but a few of the sources of information.

* * *

4 Have you carefully planned the interior arrangement of your store, that is, the arrangement of your different departments? .....

Quite often you can get good ideas for the arrangement of your store by studying the arrangement of other stores, especially the large and successful stores.

* * *

5 Have you a good lighting system to show your goods to the best advantage? .....

* * *

6 Is your stock clean and well arranged? Does it invite inspection? .....

* * *

7 Do you ever look at your store from the viewpoint of a customer? .....

If you will look at your store as a customer does, that is, casually pass your windows—go into your store as if you did not know anything about it, it will often help you make it more attractive.

* * *

8 Have you tried changing around the arrangements of your departments, to see which is the most profitable? .....

Quite often, by changing the departments from one part of the store to another, you will find it will enable you to sell more goods. The same is true of all other departments, and also all lines.

* * *

9 Do you clerks render prompt and courteous service? .....

* * *

10 Do you keep a record of your sales by departments, so that you can tell which departments are falling behind? .....

* * *

10a Do your records show you which articles and lines are not selling as quickly as they should, and have you a system of watching your records so that the slow sellers will not be in stock too long? .....

* * *

11 Can you tell each day the cost of the goods that you sell each day, so that you will know whether or not you are making a profit on the goods that you sell? .....

* * *

12 Do you keep a record of your sales by clerks, so that you know which clerks are earning a profit and which are not?

* * *

13 Are all of your goods marked in plain figures, so as to impress upon your customers that you do business on a one-price basis? .....

* * *

14 Do you put special efforts on certain departments because that department appeals to you more than others do? .....

* * *

15 Have you a system for securing names and addresses of new prospective customers, and facts pertaining to them? And do you also keep a record for securing of information that will help you make more sales among your customers, such as keeping a record of wedding anniversaries, birthdays, etc?

* * *

16 Have you tried to enlarge your selling territory in outlying districts, either through solicitation—or advertising?

* * *

17 Do you advertise through your local paper? .....

* * *

18 When you do get up advertisements, do you get them up because it is a job that must be done, or do you make them carefully? .....

* * *

19 Do you advertise seasonable goods? .....

* * *

20 Do you make a study of the advertisements used by other merchants, that is, not only those used by other stores in your line, but of other kinds of stores as well? .....

* * *

21 Do you make a study of manufacturers' advertisements of lines that you handle to get ideas for your own advertisements? .....

* * *

22 Do you use the cut service and other advertising helps supplied by manufacturers? .....

* * *

23 Have you a mailing list? .....

* * *

24 Do you keep your mailing list up to date? .....

* * *

25 Do you use your mailing list? .....

* * *

26 Are you able to tell from your records whether your advertising does actually increase your sales for the articles or lines advertised? .....

Some advertisements, such as advertising special sales, should bring immediate results, but unless you have the right sort of records, you cannot tell just how much good your advertising does.

* * *

27 Do you set aside an appropriation at the beginning of each year for advertising for the coming year? .....

That is, do you set aside a certain amount of money for the ensuing year, based on your expectation of the volume of business you expect during that year?

* * *

28 Do your records show what percentage you spend for advertising, that is, the amount you spend for advertising compared to your gross sales, and also, the amount you spend for advertising compared with your total overhead expenses? .....

* * *

WINDOW DISPLAY

29 Do you carefully plan your window displays, or do you just use your windows as show windows, and not as sales windows? .....

* * *

30 Do you display seasonable goods? .....

* * *

31 Do you keep your windows clean? .....

* * *

32 Do you try to have your windows better looking than the windows of your competitors? .....

* * *

33 Do you use manufacturers' display material? .....

* * *

34 Do you watch for manufacturers' advertising campaigns and plan window displays to connect up with those campaigns? .....

* * *

35 Do you have price tickets on most of the goods displayed? .....

* * *

36 Can you tell from your records whether your displays actually increase the sales of articles that you display? .....

Unless you keep a record of your sales by lines and departments, you cannot tell which displays pay the best.

* * *

GENERAL MANAGEMENT

37 Have you a good system of records that enables you to manage your business on facts, or do you manage it on guesswork? .....

* * *

38 Do you know how often you turn your stock in each department? .....

* * *

39 Do you know, beyond the possibility of a doubt, that the selling prices on everything that you handle are based on the proper mark-up? .....

* * *

40 Do you know exactly what your expenses are and whether or not they could be trimmed in any way? .....

If you merely keep a record of your expenses as money paid out, you cannot tell whether they are high or low, but you should keep them on an account basis, enabling you to know just what you are spending your money for. In every well-organized business, the manager should be able to tell at a glance what his expenses were for any particular time, for any particular class of expense.

* * *

41 Do you know how much you have to sell at the beginning of each month to meet your expenses for the coming month, and to make a profit? .....

* * *

42 Do you know what your net profit and expenses are for each month? .....

* * *

43 Do you know exactly how much money you have tied up in stock by departments? .....

* * *

44 Do you know how your expenses for any given month compare with those of a month, six months previous, or a year previous? .....

* * *

45 Do you know how large an investment your fixtures and your store represent, and do you charge off 10 per cent. for depreciation each year? .....

* * *

46 Do you have considerable trouble in making out your Income Tax Report, or are your records in such shape that you can make it out in a comparatively short time? .....

* * *

47 Do you charge off the right amount each year for loss through theft, or other reasons, that is, do you base your charges on facts, instead of guesswork? .....

* * *

48 Do you know whether you have any lines that are eating up the profits you make on other lines? .....

* * *

49 Do you keep an accounts receivable ledger? That is—a record of all goods sold on credit, so that you know exactly who owes you and how much? .....

* * *

50 Do you use every effort possible to keep accounts receivable down to a minimum? .....

* * *

51 Are you careful in extending credit? .....

* * *

52 Do you know exactly how much money you owe to manufacturers, jobbers and others? .....

* * *

53 Do your clerks like their boss? .....

* * *

54 Do you try to educate your clerks to get the most out of them, or do you let them shift for themselves? .....

* * *

55 Does your treatment of employees inspire respect, loyalty and energy? .....

* * *

56 Do you pay your clerks on a salary and bonus basis, making it worth their while to increase their sales? .....

* * *

57 Do you discount your bills? .....

* * *

58 Do you belong to a local, provincial or national association, and do you attend their meetings? .....

* * *

59 Do you read trade newspapers? .....

* * *

60 Do you use your own and your clerks' time according to relative value, that is, do you reserve your time for executive work and plan to let your minor help take care of your minor work? .....

* * *

61 Are you open to suggestions, or are you set in your ways? .....

* * *

62 Do you like your work? .....

* * *

63 Do you take a vacation every year? .....

* * *

64 Do you take an annual inventory?—do you compare it with your permanent stock record to see whether or not you are short any goods? .....

* * *

65 Do you make immediate and satisfactory adjustments of all complaints, so that your customers are satisfied? .....

Asbestos and Its Many Uses

Second of a Special Series of Articles on Practical Topics of Interest to Men in the Trade—Keep These Where You Can Refer to Them at Any Time

COMMERCIAL asbestos is made from a fibrous chrysolite, a variety of serpentine; and from tremolite and actinolite. These are all fibrous minerals, which are separable into pliant filaments, and which have the property of being incombustible.

The asbestos which comes from the Province of Quebec is the base of practically all of the manufactured asbestos in America.

The crude asbestos is first crushed between rollers, when the fibres are divided. It is then screened and graded. The long fibres are used for woven asbestos goods. The ground asbestos is not wasted, but is used as a base for many different insulating materials.

This article deals with pipe and boiler coverings, and it is not our intention to touch only on those coverings made of asbestos, but also on coverings made of other materials.

A Non-Conductor

Before we attempt to point to the merits of various materials we wish to direct the reader's attention to the value of perfectly still air as a non-conductor of heat.

The value of heat-insulating materials lies in their ability to hold minute quantities of confined air. Therefore, it can be said, generally, that coverings of light weight are of greater value than those that are heavy.

In the accompanying chart we are showing, approximately, the quantity of heat transmitted through various substances. This chart is based on figures obtained through tests made at Cornell University, and indicates the value of the materials specified. The ratio given for stagnant air is not taken from the university test, and is shown only for the purpose of again directing the reader's attention to the worth of the coverings, which have the quality of holding air.

Provide Air Spaces

A material that is not a non-conductor of heat is not increased much in heat retaining efficiency by any addition to its thickness. Any increase of thickness that is made for the purpose of retarding the flow of heat should be made by the provision of additional air spaces. Air spaces must not be made so large that heat can be carried from the covering on one side of the air space to the other by convection currents.

The chart indicates that asbestos, magnesia and mineral wool are the coverings most valuable on steam pipes. Wool and hair are also good non-conductors of heat, but their effective lives are very short when compared with the greater durability of the three first-mentioned coverings.

Some of the best insulating materials have the objectionable feature of becoming brittle when kept at a temperature exceeding 140 degrees. Some insulating materials can not be used, because not fire-proof.

Boiler Coverings

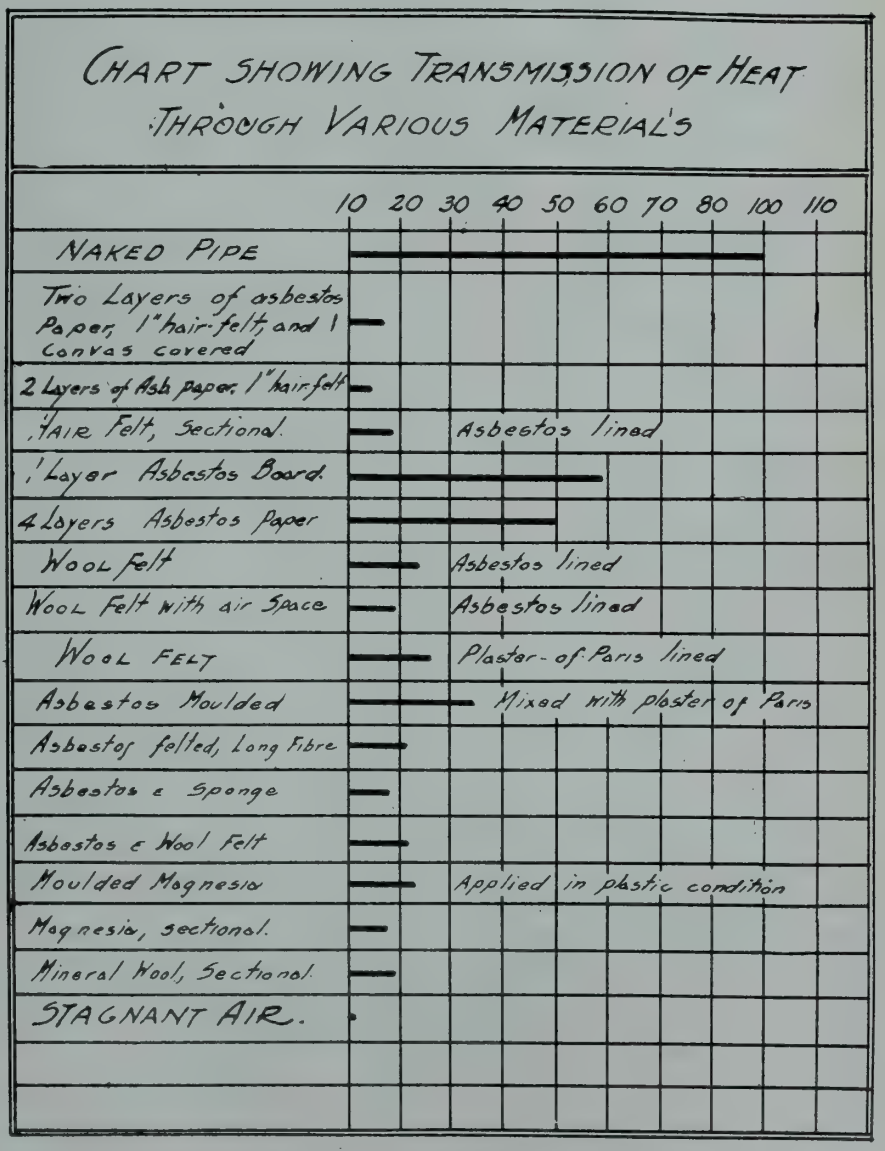
It is usually the custom to cover portable boilers with plastic asbestos cement, or to cover them with blocks of magnesia or of mineral wool.

When covering a boiler with plastic asbestos, the dry asbestos is mixed with water until it is of the consistency of mortar. After it has been allowed to stand for a few hours, it is applied to the hot surfaces of the boiler. Some fitters put the first coat on by hand; others use a plastering trowel. The first coat should be about ½-inch thick, and should be left rough, as a base for the second coat. Sometimes three coats of asbestos are applied; at other times only one. In any case, the final coat should be finished with asbestos and Portland cement, in the proportion of one to one, and trowelled to a hard finish. Each coat should be thoroughly set before a following coat is applied.

Plastic Asbestos

When steam boilers are to be covered with plastic asbestos, it is a good practice to provide an air space; following the method of construction illustrated by the drawing herewith shown.

The first coat of asbestos should be applied directly to the hot surfaces of the boiler and allowed to set. Over the first coat an air space should be formed by metal studs and wire lath. The wire lath is to be covered with a ¾-inch coat

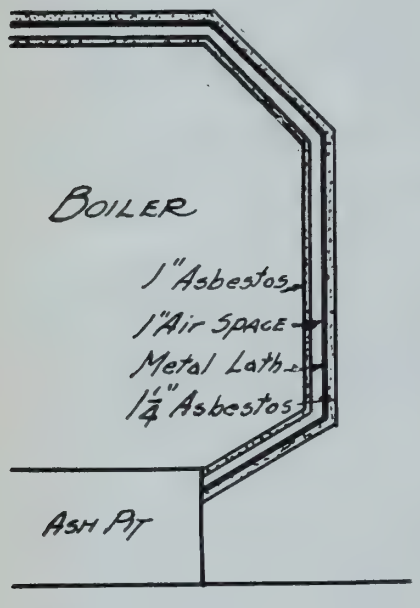


of plastic asbestos, left with a rough surface ready for the final coat. The final coat is to be ½-inch thick, and made of Portland cement and asbestos in equal proportions.

Block Coverings for Boilers

When block coverings are properly fastened to the boiler they make an excellent heat insulating jacket. A great deal of care is required when applying a block covering; so that the efficiency of the jacket will not be destroyed through the shifting of the blocks. The blocks should be temporarily held to their positions by ropes with slip knots. The use of the slip knot permits of tightly drawing into place the blocks prior to the time that the final wiring is undertaken. The blocks should not be wired until the whole boiler is covered, and every block should have two strands of wiring holding it to its place.

The blocks should be finally covered with a ½-inch coat of plastic asbestos



BOILER COVERING OF PLASTIC ASBESTOS WITH AIR SPACE.

and a canvas jacket. The canvas jacket must have its edges kept far enough back from the fire-doors, so that the edges will not be destroyed by heat.

Pipe Covering

Asbestos air-cell covering is made of thick asbestos paper, corrugated with longitudinal grooves, placed in layers so as to form air-cells. The layers are secured to one another by silicate of soda, and then covered with a canvas jacket. The value of this covering is in direct ratio to the number of layers of corrugated paper.

Asbestocel covering is made similar to the air-cell, but has its air spaces running in parallel rings around the pipe.

There are some sectional coverings of asbestos with air spaces arranged different from those already described; but as the air-cell and asbestocel coverings illustrate fairly well the principle of confining minute sections of air within a shell of incombustible material, they can be taken as standards of satisfactory pipe coverings of that type.

85 Per Cent. of Magnesia

Magnesia sectional covering is composed of about 85 per cent. of magnesia mixed with long fibre asbestos and carbonate of lime. This covering has a canvas jacket.

Fire-felt is made of long-fibre asbestos. It contains a great number of minute air spaces, except toward the outer shell, where air circulation is prevented by a filling of fine asbestos. Where the covering comes in contact with the pipe, its surface is corrugated. This covering also has a canvas jacket.

High-pressure steam pipes are often covered with a composition of earth, having a wool sheath and a canvas jacket.

Turn Back Fasteners

Pipe coverings are usually held in place by brass lacquered bands, spaced at regular intervals. In placing such bands care should be taken to see that the fasteners are turned from the line of vision, and with the loose ends tied back or clipped off; otherwise, the ragged appearance of the loose ends will spoil the finished appearance of the work.

No matter how effective a covering may be when it is first installed, it can not be considered to be of much value if it is made of anything but durable material, or if it is not protected from the damage of faulty installation. Some cheap grades of covering contain sulphate of lime and a very small proportion of carbonate of magnesia, with a bonding material composed of sawdust, excelsior, hair, etc.

All sectional coverings have standard moulded fittings for the covering of tees, ells, valves, etc. But frequently the fittings are covered on the work with plastic asbestos, moulded by hand, and covered with canvas or cotton.

Sheet Coverings

Large surfaces, such as shells of boilers, tanks, smoke pipes, etc., are usually covered with cork fire-board, magnesia sectional blocks, asbestos, asbestos and magnesia, asbestos air-cell covering, etc.

Cork fire-board is an excellent covering; but not so fire-resisting as an asbestos or a magnesia covering. Cork fire-board may be cut with a saw. The joints should be filled with asbestos and cork.

Magnesia sectional blocks should be secured in place with wire bands, as described elsewhere in this article. This is a very good covering, and is entirely fire-proof.

The asbestos air-cell covering is formed in sheets, built similar to pipe covering. It can be cut with a saw. It should be fastened in place with metal clips, metal studs, or wire, as circumstances may require.

Mineral wool is made from iron furnace slag and limestone, or from slag blown from granite.

Coverings Underground

It is sometimes necessary to place pipes underground. When so placed, they should be run in a conduit and not allowed to come in contact with wet earth or with cinder concrete.

Conduits when made of wood should be lined with tin or some other incombustible material; otherwise, the wood may soon be reduced to a soft pulp, by reason of the action of the heat of the pipes. With high pressure steam, the heat soon chars the wood to a degree where spontaneous combustion may take place.

A box made of wood, and filled with a packing of loose asbestos or mineral wool, makes a serviceable conduit where the ground is dry. It is well to make the box water-tight, and to coat it on the outside with tar.

Should Have Covers

Pipe conduits should always be fitted with moveable covers, or some other means of access to the pipes contained therein. If suitable chambers can be located where the pipes may be withdrawn from the conduit, it is not necessary that the moveable covers be run the full length of the pipe tunnel.

There are several forms of covering made with a ready-built wood conduit for work that is to be run underground.

Flexible Covering

Where conditions are such that a pliant covering is required, asbestos paper, fire-felt, or hair-felt may be used.

Asbestos paper is made just as the pipe covering is made; but not so stiffly cemented.

Fire-felt is made of long-fibre asbestos worked into a pliant sheet. After being placed in position, it is covered with a canvas jacket. This is a very good covering for irregular surfaces.

Where the conservation of heat is of greater moment than is the length of service, hair felt in various thicknesses may be used. It is usually made two yards wide and is packed in bales. This covering should be placed on the pipes in the following manner:

First the pipes should be covered with two ply of asbestos paper. Over the paper there should be placed one inch of hair-felt, with a cover of building paper and a canvas jacket. The twine used in the sewing of the jacket should be well bees-waxed.

A Good Insulator

A covering of hair-felt, while it is a good insulator, is unsatisfactory, because it disintegrates very rapidly on account of the ease with which it absorbs moisture. It also forms a first-class lodging house for vermin.

Continued on page 35

ANOTHER NEW FEATURE

FOR

SANITARY ENGINEER

Plumber and Steamfitter of Canada

We have recently announced in SANITARY ENGINEER, Plumber and Steamfitter of Canada, a number of important new features for 1920. We are glad to advise our subscribers of another new and important feature which will appear in SANITARY ENGINEER, commencing with the February 1st issue.

SANITARY ENGINEER has purchased the exclusive right to publish a series of articles entitled "Sewage Disposal for Small Communities." This series covers a wide range of important subjects. After appearing in SANITARY ENGINEER it is the intention of the author of this series to publish the series in book form. The author, Mr. Bernard E. T. Ellis, describes the book as a practical handbook on the construction of small sewage disposal work suitable for private houses, public institutions, and small country districts. There are 84 illustrations to be used in connection with this series.

The contents may be briefly described under the following headings:

1 Preliminary and general description of sewage.

2 Cesspools and septic tanks.

3 Construction and design of small septic tanks for private houses.

4 Construction and design for larger installations, including sedimentation tanks, septic and two-storey Imhoff tanks suitable for all classes of public buildings and small country towns.

5 General description of private house drainage.

6 Disposal of sludge and design of small pumping installation.

7 Land filtration and artificial bacteria bed.

In view of the increased attention being given to all subjects appertaining to public health the author of the series has compiled the book describing the many successful methods that are being and that have been adopted for treating and disposing of sewage from small communities, thus filling a long-standing want of sanitary engineers, architects, and for a reference explaining the design of small modern sewage installations for the removal of foul water waste on the best sanitary ground with the least nuisance.

Mr. F. R. Maxwell, president of the Canadian Society of Domestic Sanitary and Heating Engineers, was asked to examine this series and he stated in part as follows: "I believe the information contained in the series will be invaluable to the men in the trade. There are many points made clear and many phases of practical work taken up, which would puzzle most men if they were called upon to do the work discussed. I believe that information of this kind is greatly needed and should be read carefully."

This series will be reproduced in SANITARY ENGINEER, Plumber and Steamfitter, at great expense, in a series of splendidly illustrated articles, but we believe our readers will greatly appreciate this new feature. Further details regarding the new series will appear in next issue and the first article of the series will appear in the February 1st issue.

EDITORIAL COMMENT

THE PLUMBERS' DEMANDS

JOURNEYMEN plumbers at Hamilton, Ont., presented an ultimatum to their employers on Saturday, that commencing immediately a forty-hour week would go into effect and that commencing at once all work must be paid for at the rate of time and a half. Notice was also given that, beginning March 1, the wage schedule will be ninety cents an hour. Hamilton plumbers up to the present have been working forty-four hours a week and drawing seventy cents an hour. According to press reports some of the Master Plumbers are of the opinion that the action of the journeymen is uncalled for. Just what the developments will be, it is impossible at present to state, but the matter may be taken up at Ottawa and an investigation asked for, especially as it is stated that the journeymen in other places are planning to demand higher wages. One of the great complaints that are being made by prospective builders all over the country, it is stated, is in connection with the cost of plumbing. The Master Plumbers state now, as they have stated before, that their books are wide open for the Board of Commerce or any other body to investigate. They state emphatically that they are not making any unreasonable profits and that in many cases they are not making even a reasonable profit.

IS READJUSTMENT AT HAND?

WARNINGS concerning the money situation which were conveyed to bankers following a financial conference at Washington on Tuesday, in some quarters are taken to indicate that credit contraction is coming and that an era of tighter money is at hand. No less an authority than Professor Adam Shortt, discussing the situation as far as Canada is concerned, writes under the heading: "Critical Time to Come," as follows: "Among the normal symptoms of costs overtaking prices and leading to the stifling of industry, are greatly increased bank deposits, both time and demand. To fully realize this trend one must eliminate Government transactions, as none of these are financed on the basis of meeting expenditure out of earnings and may therefore ignore the normal relations of costs and prices. In every financial form, extravagant expenditure, and especially after great wars, the depreciation in industrial and the appreciation in Government securities have been symptomatic factors. Contrary to popular expectation, however, the critical financial period never follows immediately on the close of a war; but only after such a period as permits of a great outburst of lavish expenditure and speculation, proportioned to the amount of inflation of credits and disbursements of Governments." Not only Canada, but the whole world has been pursuing an extravagant course. Bankers everywhere have been pointing it out for some time and business men have been wondering when the condition was going to be forced to stop.

The big thing for Canadian business men to remember, however, is that Canada is absolutely sound. A readjustment from present conditions will make for better business all round and no one realizes better than the merchants that a return to normal conditions is desirable. No country in the world is better able to stand such a temporary period than Canada. With this country's resources and the markets of the world bare, if Canadians go right along producing, the readjustment period should be short and cause no serious disturbance.

WESTERN CO-OPERATION

THE formation of a Western Executive Council of the merchants of Manitoba, Saskatchewan, Alberta, and British Columbia at a very largely attended meeting in Regina, shows the manner in which Western retailers are co-operating. This is merely a preliminary move in view of some of the important developments that may take place not only in trade matters but in legislation. The success of the Grain Growers' and other co-operative organizations of farmers has demonstrated the possibilities that follow united action and the Western merchants are preparing to adopt the same methods that have won success in other cases. With a tariff battle in the offing the whole situation is one that is filled with interest for every business man.

PARLIAMENT TO MEET

PARLIAMENT has been called to meet on February 26. Indications are that little legislation that will affect merchants and business interests generally will come up. As stated in a previous issue of SANITARY ENGINEER, there is little likelihood of any important changes being made in the tariff just now. The announcement that an inquiry into tariff matters is to take place after the

session and that arrangements for it are already under way indicates that any discussion regarding readjustments will be purely informal. Legislation dealing with labor questions and also with shipbuilding may affect retail business. The demands of organized labor for a 44-hour week in Canada with the establishment of a minimum wage adequate to insure a fair standard of living will have an important bearing not only on future production and future prices, but on trade itself. The hundreds of thousands of workers in Canada constitute an enormous buying power. Every merchant knows what increased wages has meant from a trade standpoint in the past five years. Business has never been better and there never was so much money in circulation. On the other hand, what has come to be known as "the vicious circle," in regard to high prices, has resulted and despite all efforts to check it has increased until everyone is affected. Just how the Government will deal with the demands of labor is a matter that will be watched with keen interest by merchants and manufacturers all over the country.

SAYS RAISE IS NECESSARY

IN connection with the announcement in SANITARY ENGINEER two weeks ago that the Canadian railways are preparing to ask for power to increase freight rates, D. B. Hanna, of the Canadian National Railways, has since dealt publicly with the situation in discussing freight matters at London, Ont., before the business men. He declared that an increase in freight rates is positively necessary if the railways are to stay in business. He further declared that Canada is enjoying the lowest freight rates in the world and quoted figures showing that in England the tariffs are much higher than here. In speaking of the future, Mr. Hanna made some remarks that are of distinct interest to merchants all over the country. He gave it as his opinion that the Dominion is merely at the commencement period of a development that will be remarkable and predicted enormous immigration to Canada in the next few years. No country in the world, he declared, has a brighter future than Canada.

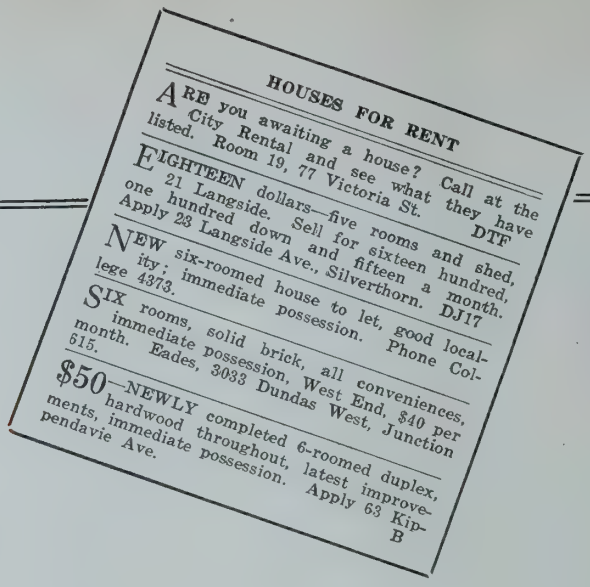
THE METAL WORKERS

THE statement of R. C. Brown, president of the Metal Trades Council in Toronto, that the demands of the unions this year, which are now being prepared, will not be excessive, is of importance to the retailers of Canada. The mere fact that there are to be demands in itself indicates possible advances in prices and at the present time this is a condition which business men all over the country are trying their hardest to combat. It will not be forgotten that last spring the men in the metal trades made demands and that when they were not met they called a strike. One result of this walkout was a shortage of goods which has not even yet been made up. Many of the men lost several months' time, and this at a period when merchants all over the country were crying for more goods. The walkout had a particularly serious effect on the building trades as for a time some of the lines required were practically off the market and many people who had planned to build could not go ahead, because they could not get the materials. Mr. Brown, in his remarks about the demands to be made, said: "We are not looking for a strike and we hope the employers understand the necessity for co-operation." This is a little different attitude from that taken a year ago, and it may be that some of those who spent several months doing nothing have learned a lesson.

VERY MUCH IN THE GAME

BRITISH trade figures for the year which were published during the week show that British manufacturers are very, very much alive. The fact that both imports and exports reached new high levels show unmistakably that Britishers have been quick to take advantage of the new markets that are open. They are not only doing this, but they are going after more trade all the time and the prediction is freely made that 1920 figures will far exceed anything that has even been handled in the past. Even allowing for higher prices the huge figures of last year's import and export business show that Britain has not been letting any grass grow and also that British firms got back from a war basis to an exporting basis in remarkably short time. So much is this the case that some nations which were dreaming of world markets are awakening to find out that the markets they expected to get after the war are already supplied, and supplied by British goods.

"HOW AM I GOING TO SHOOT THE ONE WITHOUT HURTING THE OTHER!"



HOUSES FOR RENT

ARE you awaiting a house? Call at the City Rental and see what they have listed. Room 19, 77 Victoria St. DTF

EIGHTEEN dollars—five rooms and shed, 21 Langside. Sell for sixteen hundred, one hundred down and fifteen a month. Apply 23 Langside Ave., Silverthorn. DJ17

NEW six-roomed house to let, good locality; immediate possession. Phone College 4373.

SIX rooms, solid brick, all conveniences, immediate possession, West End, $40 per month. Eades, 3033 Dundas West, Junction 515.

$50—NEWLY completed 6-roomed duplex, hardwood throughout, latest improvements, immediate possession. Apply 63 Kippendavie Ave. B

One day's "Houses for Rent" ads. taken from leading daily paper published in Canadian city of half a million population.

GLANCE over the "houses for rent" column of the daily papers and you will realize why Canadians have the building fever which will result in more homes being erected in 1920 than Canada has known in many a year. **More building will mean more plumbing.**

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

TORONTO SHOW ROOMS:
119 King St. East

HALIFAX OFFICE:
McCurdy Building, Hollis Street

Are You Planning

on "Nineteen-twenty" business and can we help you?

Port Hope Sanitary

Plumbing Ware

and Port Hope Sanitary Service have been the source of a great deal of satisfaction to the retail plumbing trade of Canada. We aim to not only give you dependable goods, but to give you every assistance in our power to make business as easy and as pleasant as possible.

When you instal Port Hope Sanitary fixtures you are at least sure of giving satisfaction to your patrons.

To assist the trade and to eliminate the necessity of carrying an overload of stock in their show rooms, we publish three booklets: "For the Home" and "For the Factory" catalogs, as well as a "Roughing-in" booklet which gives complete measurements of all fixtures.

These booklets are yours for the asking.

Mfg. Company, Limited

Head Office:
ROYAL BANK BUILDING, TORONTO

WINNIPEG OFFICE:
405 Tribune Bldg.

MONTREAL SHOWROOMS:
234 Beaver Hall Hill

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

Personals

E. H. Russell, of London, Ont., has again been appointed a member of the Board of Health.

Trade Notes

Dodd Heating Systems, Ltd., Toronto, have moved to new and larger quarters at 504 Spadina Avenue.

New Firms

U. Suguoin, sanitary engineer, has been registered at Montreal.

Obituary

Taken ill on the train while she was on her way to visit with a daughter in Kentucky, Mrs. Margaret Smith, wife of William Smith, sanitary engineer, of London, Ont., was forced to return, and died shortly afterwards in St. Joseph's hospital. She was 63 years old and was a native of Toronto.

Incorporations

Glasscoat Sewerpipe & Conduits, Ltd., head office Toronto, capital $250,000, plans to manufacture and deal in tile, sewer and conduit pipes and similar lines.

Health Departments Are Amalgamated

OTTAWA.—The Department of Public Health, which has been conducted in connection with the committee of conservation, has been amalgamated with the Federal Health Department under Dr. Amoyt; and Dr. C. A. Hodgett, who was medical adviser to the conservation commission, is now in charge of the division of sanitary statistics, and also the information, publication library and circulation branch of the Federal Health Department.

Winnipeg Plumbers Threaten to Join O.B.U.

WINNIPEG, Jan. 15.—Members of the Plumbers' Union, at a meeting today, threatened to leave the International Union and join the O. B. U. unless the International reinstated expelled members. H. Roberts, vice-president of the International, announced that the whole union might be expelled if it persisted in its attitude.

Ball and "At Home" To Be Held January 30

The Ball and "At-Home" which is to be held on the evening of January 30, by the members of the Toronto Society of Domestic Sanitary and Heating Engineers, promises to be a most enjoyable affair. It is the first gathering of the kind that has been held since the war started, and the committee in charge of the arrangements is hoping to pack into the evening all the enjoyment that might have been had if the war conditions had not necessitated a suspension of the "At-Homes." It will be held in Foresters' Hall, at 22 College Street, and a big turnout of the Toronto members is expected.

Painting Presented To Joseph Wright

Joseph Wright, of the firm of Bennett & Wright, Toronto, was presented with a life-sized oil painting of himself by the employees of the company at a banquet held on Saturday evening at the Carls Rite Hotel to commemorate the forty-fifth anniversary of the founding of the firm.

The presentation was made by Daniel McRae, the firm's oldest employee, who has been with them for forty-three years.

Gold "Legion of Honor" decorations were presented by the company to all employees who had been with them 20 years or more; gold buttons to those employed for fifteen years, and silver buttons to all who had been with the company for more than five years. E. F. Wright, secretary-treasurer of the firm, announced that the group system of insurance was being adopted by the firm. Policies ranging from $500 to $1,000, according to the length of service, would be presented to all employees who had worked for them at least six months, he said.

Hamilton Journeymen Demand 40-Hour Week

Journeymen plumbers at Hamilton, Ont., served notice on the master plumbers of the city that, commencing January 10 a forty-hour week was going into effect, and that any work done after that date must be paid for at time and a half. The masters were also notified that, beginning with March, 90 cents an hour will be the wage schedule. Up to January 10 journeymen plumbers have been working forty-four hours a week and receiving 70 cents an hour.

Western Executive Council of Merchants is Formed at Big Meeting in Regina

By Close Co-operation Retailers of Manitoba, Alberta, Saskatchewan and British Columbia Hope to Achieve Solution of Mutual Problems—J. A. Banfield is Chosen President

REGINA, Sask.—At a meeting of retail merchants held in the City Hall here representatives from all parts of the Western Provinces were in attendance and appointed a Western Executive Council of Merchants.

The principal objects of the council will be to consolidate efforts of retailers in four Western Provinces and to deal with Western matters as a whole.

J. A. Banfield, representing Manitoba, president of the Dominion Retail Merchants' Association, was chosen as president of the council. Other officers are: W. McRobie, representing British Columbia; T. G. Gaetz, representing Alberta, honorary secretary; F. E. Raymond, of Saskatoon, secretary; W. P. Ball, of Assiniboia, representing Saskatchewan, treasurer.

It is felt that there are many problems which while affecting either Manitoba, Alberta, Saskatchewan and British Columbia individually also have a wide general bearing. By working together the merchants estimate that their efforts in the solution of these various matters will have many times the weight that can be obtained either by the work of individual associations or even a provincial association.

Contracts Awarded

Gervin and Hodgins have the plumbing and the Capital Hardware Co. the heating for two residences costing $9,000, for W. H. Lee, 57 Glen Avenue, Ottawa.

W. M. Adams has the plumbing and W. J. Merrill the heating contracts for store and apartments costing $6,000 for J. J. Lucas, 1035 Gerrard Street, E. Toronto.

Brampton Hardware Co., Brampton, Ont., has plumbing and heating contract for new $25,000 factory for Universal Batteries, Limited.

T. Latourelle & Son have plumbing and heating contract for new $15,000 warehouse and offices for the De Laval Co., Montreal.

Charles Taylor & Co., have heating and plumbing work for new $8,000 residence for John McGraw, 5 King St., Brantford, Ont.

W. S. Fraser has plumbing and A. W. McGilvary the heating for new $5,000 residence for C. H. Bentley, 38 Corbett Avenue, Toronto.

Kelly and Cracknell have heating and plumbing for four bungalows costing $24,000 for W. T. Graham, Indian Grove, Toronto.

A. T. Stevens has plumbing and Roy Lapier the heating for 13 new residences costing $50,000 for Cairns Bros., 12 Donlands Avenue, Toronto.

John W. Draper has heating and plumbing for alterations to Club house costing $10,000 for W. W. Scane, Chatham, Ont.

F. S. Walker has heating and plumbing for new diet kitchen for the General Hospital at St. John, N.B., costing $10,000.

Tenders

Tenders will probably be called early in February for all work in connection with the erection of a $2,000,000 addition to the King Edward Hotel, Toronto.

Murray Tyhurst, Leamington, Ont., is preparing plans for a new three-storey business block to cost $35,000, and wants prices on plumbing and heating equipment.

Tenders are being received for a new seven-storey Nurses' Home and new operating rooms to cost $400,000 in connection with St. Michael's Hospital, Toronto.

Plans are being prepared by the Merchants Bank of Canada for a new office building at Galt, Ont.

Tenders are called for the erection of two additional wings to the Earl Grey school in Toronto.

Plans are to be prepared at London, Ont., for a new Collegiate Institute to cost $90,000.

By-laws carried at Brantford, Ont., for construction of isolation hospital and nurses' home to cost $87,000, extension to general hospital to cost $78,000 and residence for staff of Sanatorium to cost $20,000. Plans are being prepared. H. F. Leonard, City Clerk, will call for tenders.

Plans are being prepared at London, Ont., for new buildings in connection with the Western University, to cost $1,000,000. Dr. Louis Wood, Western University, London, is in charge of the work.

The Royal Bank is having plans prepared for the erection of a new building at Lambeth, Ont., to cost $10,000.

The school board at Prince Rupert, B.C., Dr. W. Kerign chairman, is having plans prepared for a new school.

By-law authorizing construction of a new hospital to cost $55,000 was passed at Hanna, Alberta.

The Shoepack Co., Midland, Ont., is preparing plans for a new factory to cost $15,000.

Tenders will be called about February 1 by O. I. Baragar, Elm Creek, Manitoba, for new school to cost $20,000.

Tenders are open for all trades in connection with the erection at Montreal of a new $30,000 church for the Methodist congregation. J. L. Waldie, 4169 Dorchester St., W., chairman.

Continued on page 28.

New Indenture System for Apprentices May be Made Dominion-Wide in Application

Plan Adopted by the Toronto Society Offers Many Features That May Help in Solving the Apprenticeship Problem All Over Canada

IN connection with the new indenture system inaugurated by the Toronto Society of Domestic Sanitary and Heating Engineers, as outlined in the previous issue of SANITARY ENGINEER, an effort will be made, it is stated, to have this plan made Dominion-wide.

The apprentice problem is one of the most important questions which the master plumbers have to face at the present time, as the whole future of the trade depends upon it. Owing to conditions which have existed during the past five years, the situation has been more than ever complicated, as a result of the high wages offered in other lines of employment.

Is Working Well

While the plan adopted by the Toronto Society has only been in operation a very short time, it is stated that it is working out well. Every effort is being made to interest the parents of the boys in the work, and the more of this that can be done the better the results will be. There is a good attendance at the classes, and the educational authorities have signified their willingness to provide for as many classes as are necessary to accommodate the boys who are learning the plumbing trade.

Take Federal Action

If Federal action is taken to provide means for apprentices in the plumbing and heating business all over the Dominion learning important technical details, there is no doubt that a long step will have been taken in solving what at the present time is causing many of the master plumbers no small anxiety. One of the difficulties has been to secure the necessary instruction, especially in the smaller and also in the isolated centres. If arrangements can be made for securing instruction, it is felt that one of the great difficulties many sanitary engineers have in securing apprentices would be overcome.

Make It Attractive

There are also those in the trade who feel that something should be done to present the attractive side of the sanitary and heating business to young men, with a view to encourage them to learn a trade rather than to accept temporarily higher wages at some line where they will never have any opportunities for advancement.

Minister of Labor Favors the Proposed New Plumbing Regulations

Government Has So Many Letters to Arrange Before It Gets Down to Business That Signing of the By-laws Has Been Delayed

DISCUSSING with SANITARY ENGINEER the proposed new plumbing regulations for the Province of Ontario, Hon. Walter Rollo, Minister of Labor and Director of Public Health, stated that, owing to the large amount of work involved in forming the government, it has been impossible, up to the present, to put the new regulations through and have the signature of the Lieutenant-Governor attached.

"Personally, I think that the proposed regulations are excellent," he said. "They are, no doubt, very much needed, and will be of great benefit to the people of the Province. Public health is a matter of the greatest importance, and should be given the attention it deserves. As far as the new government is concerned, we have been so busy trying to get things in running order, and there has been so much to see to, that it has been absolutely necessary to hold the regulations over. No doubt there are many of the new members who will want to go into this matter carefully. At the present time, it is impossible to say just when the regulations will come up."

Aroused Keen Interest

The publication, in SANITARY ENGINEER, of the proposed new regulations for the Province has aroused keen interest in the trade. It is generally felt that they will make for better conditions all round, and especially in the very important matter of protecting public health. There is little doubt that, once the provisions are effected in Ontario, that a move will be made to secure the passage of similar by-laws in other provinces. With such measures in force, and actively operating all across Canada, the benefits would be inestimable.

Builders of Houses Will Suffer Loss

In connection with the recent assignment of one of the contractors who had done considerable work for the Housing Commission at Hamilton, Ont., Secretary Wm. Campbell, of the Commission, states that until applicants file agreements to have the Commission finish the houses, no work will be done. Several have signified a determination not to sign the agreements, and if they persist in refusing it seems that the only solution is to let the house stand in its unfinished state.

In connection with the suggestion that the commission will save the applicants the profit on the houses, and so meet the additional cost of materials, it was declared by one contractor that there could be no profit at the prices that were quoted.

Several contractors believe that the applicants will find that their houses will cost them a little more than they expected by the time the commission finishes them.

Will Continue to Use Filtered River Water

Discussing editorially the failure of the ratepayers at Chatham, Ont., to ratify a by-law to secure a new water supply from Lake Erie, the "Planet" says:

"The one great feature which undoubtedly was the greatest agency in leading people to choose Thames river water, was the financial consideration. A filtration plant in Chatham will cost approximately $300,000. There is a great difference between this and $600,000, which is the engineer's estimate on the Lake Erie scheme. On top of this the impression gained rapidly that in the end the Lake Erie scheme would cost much more than the estimate. People have their doubts about wood stave piping in spite of the evidence brought forward to prove its durability, and if iron piping had to be substituted this would bring the cost nearer a million dollars than the present estimate. Altogether, the doubts of the people were aroused, and they were rather dubious about undertaking such an expensive scheme, especially when they were assured that through using the Thames River as a source of supply they would get just as pure a water. People have been drinking Thames water for years and are evidently satisfied with the taste. Typhoid was unknown until raw water found its way into the city mains from sources other than the waterworks plant, and with the latest system of rapid sand filtration and an improved distributing system, there will be no danger of a return of the epidemic caused by the water supply. Whether or not, as Mr. Westman thinks, future conditions will eventually cause the city to go to Lake Erie for a civic supply of water, it is safe to say that for the present at least the people of Chatham will content themselves with filtered Thames River water, and the commissioners elected to look after the city's business in this regard will devote their energies towards perfecting a scheme which will guarantee Chatham a safe, pure and wholesome supply from this source.

Montreal Learns What Water Shortage Means

Montreal.—There is an old saying that "You never miss the water until the well runs dry." This was reversed a little in this city, but the scarcity of water was felt acutely. Citizens experienced rather a trying time through the strike of the waterworks' employees. These men struck at midnight on December 31, and it left the city in a very precarious condition with regard to water supply, and particularly on the high levels of the city.

As a result of the strike much inconvenience was suffered, not only by private homes, but also in some of the public institutions, while one or two of the hospitals and childrens' homes were very awkwardly situated.

While some of the manufacturing plants found it difficult to operate at full time, the difficulties were soon overcome. As a result of the strike and the lack of water much anxiety was experienced, and several fires broke out, which fortunately were controlled before they became serious.

Sanitary Conveniences Not Yet Installed

According to Inspector W. H. Elliot of the Board of Education, Toronto, the sewer connections for the sanitary conveniences at Kitchener School will not be completed until the latter end of March owing to the severe weather. The building is now without drinking water, and an application for Jarvis water bottles on stands for each room has been applied for by Principal W. N. Colvin. A temporary line of water-pipe to within 100 feet of the building has been laid, to which a line of rubber hose has to connected by the caretaker to fill the boilers for heating purposes each day. It is expected work of excavation will commence in the early spring. The school has at the present time the capacity number of pupils.

Danger Lurks in Cheap Gas Tubing

If those in the trade would condemn every attempt to connect gas appliances by means of cheap rubber tubings, there would be less news of deaths from asphyxiation.

Nearly all gas appliances should be connected directly to the supply by means of iron piping. Accidents are almost sure to happen if the use of cheap gas tubing is persisted in. Cheap gas tubing often sold by irresponsible agents and dealers, hardens and cracks in a very short time, and is liable to become a source of danger. It is best to insist on consumers having their appliances directly connected to the piping, but if this is impracticable because of the need to move appliances from place to place, then advocate the use of tubing of known strength and quality only.

Catalogues and Booklets

Wade Iron Sanitary Manufacturing Co.

Catalogue "B," just issued by the Wade Iron Sanitary Manufacturing Co., of 551-553 W. Fulton St., Chicago, contains one hundred pages, and is attractively and profusely illustrated. Among the lines listed are Wade Accessible flushing clean out house drainage fittings, Accessible flushing clean out sewage lock out and tidal back water gate valve appliances, Accessible flushing clean out fresh air inlet back water gate valve trap combinations, Iron accessible flushing clean out catch basins for grease, gravel roof, steam blow off and bilge pump purposes, drum trap water jacket grease basins, floor drains, garage, gasoline and oil separating catch basins, iron man hole covers for iron and brick catch basins, and special drainage fittings. Readers of SANITARY ENGINEER who wish copies of the catalogue may obtain same upon request.

Gas Plant May Be Operated At Brantford

Brantford.—The city council will have a special committee to enquire into the gas situation, and the Dominion Gas Company, it is stated, will either have to supplement the supply of natural gas with artificial gas or the city will undertake to take over the plant. The committee is taking this course on account of dissatisfaction in some quarters with the present service.

TENDERS

(Continued from page 27)

George B. Frank, Midland, Ont., will call for tenders in connection with an addition to the General Hospital, to cost $30,000.

Inspector J. A. Taylor, St. Thomas, Ont., will look after the preparation of plans for new school costing $10,000, that is contemplated at Crinan, Ont.

Taylor & Lackey, 90 Powell Ave., Ottawa, are calling for tenders on heating, plumbing and electrical work in connection with new $30,000 building for the Dept. of Public Works.

The Place Viger Cold Storage Co., Granby, Quebec, is having plans prepared for the erection of a plant to cost $500,000.

Murray Tyhurst, Leamington, Ont., is preparing plans for business block to cost $50,000.

Jeremiah Bell, Acton, Ont., is preparing plans for several residences and wants prices on plumbing and heating materials.

H. Grange, 121 Margueretta St., Toronto, wants prices on plumbing and heating equipment for two residences costing $9,000.

Heating System in a Montreal Church

A Description of the Design and Operation of a New Type of Heating System. Rapid Circulation and Low Volume of Water Result in Economical Operation

By J. H. RODGERS

THE Montreal General Tool Company, of Montreal, has secured the contract for the heating of the new church of St. Augustine, at Notre Dame de Grace. As this is the first installation, on a large scale, of this particular method of heating, a brief description of its design and operation may be of interest.

Owing to the severe climate conditions in this section of the country, during the winter months, the heating of houses, offices, factories and other buildings, is very often a problem of no mean magnitude. Hot water and steam heating are the systems most generally adopted, but despite the recognized efficiency of these two methods, there are still many weak points that engineers are continually striving to overcome.

Some sixty years ago the first installation of a modern hot water heating system was installed, and since that time little change has been effected in the general fundamental principles of hot water heating. With the possible exception of the Honeywell method, which utilizes mercury as a medium for increasing the water circulation, no adequate system has been devised to add materially to the efficiency of existing systems. The elementary essential of successful hot water heating is to minimize the quantity of water passing through the system, and by so doing, reduce the consumption of coal, or other fuel, and thereby increase the boiler efficiency and economy. In many so-called modern systems the movement of th water through the pipes and radiators, is very sluggish, owing to the large body of water contained in the system, and it is generally understood that water at rest is a poor absorber of heat, but when in motion has a large capacity for carrying heat.

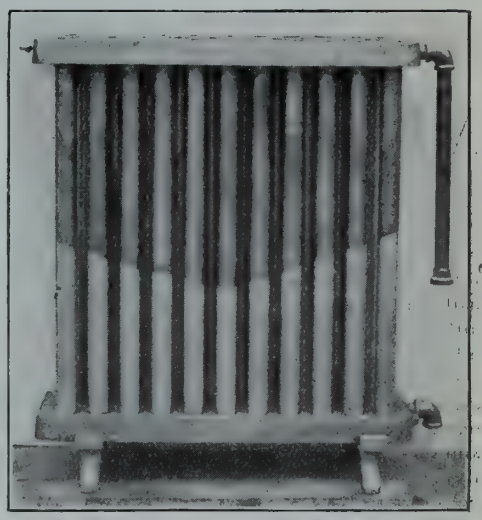
SMALL RADIATOR OF THE NEW TYPE

Working on the assumption that a water heating apparatus containing a small quantity of water, circulating rapidly, would be the most effective and economical, J. E. M. Brissette, of Montreal, has developed a type of radiator that reduces the volume of water therein to about one-quarter of that contained in the ordinary system, and at the same time adds about 75 per cent. to the radiating surface. This system is known as the "Victory" Water Heating System, and the ratio of the circulation to that of the ordinary system is practically 8 to 1, in other words the water in the Victory system circulates eight times through the system while the water in another system is passing once through the piping and radiators. By increasing the velocity of the water through the system it is changed much oftener over the heated surfaces of the boiler plates or tubes; therefore, the B.t.u. contained in the coal, or other fuel, is transmitted through the metal and more rapidly absorbed by the moving water, thus minimizing the loss of heat by excess gases passing up the stack.

The inventor of the "Victory" system of hot water heating, claims to have hit upon the most effective means of utilizing the heat units in the hot water for general heating purposes. The principle of the radiator design is to reduce the volume of water passing through the system and at the same time increase the heating surface exposed to the atmosphere. The heat distributed by the outside pipes is similar to that of the ordinary method, but the additional heating surface obtained by the use of the inner tubes, adds considerably to the effective distribution of the heat. Unlike the piping used in the ordinary systems, the seamless steel tubing used in the Victory radiators is very thin, reducing the amount of metal to be heated, thus developing heat more rapidly and more intense. Owing to the small water space between the inner and the outer tubes, the volume of the water in the system is considerably less than in many others, so that the more rapid transfer of heat, from the water to the atmosphere, causes a corresponding increase in the water circulation.

The efficiency of any radiator is its ability to waste heat; in other words, the more rapidly the temperature of the water in the system is reduced, the more effective the radiator will be, and consequently more economical.

The construction of the radiator is shown in the line drawing herewith. The size of the unit will vary to suit the conditions under which it is installed, but the general design is similar in every case. The cast iron heads are so proportioned that circulation is uniformly maintained in each and every vertical radiating pipe, and owing to the small space between the inner and the outer tubes, the film of water is very easily heated, and the movement of the water, due to the temperature change, is much more rapid than in the ordinary system. The cast iron headers (top and bottom), are made to conform to specific conditions, but the tubes are of uniform size, 1 inch and 1¼ inches, for inner and outer respectively, the lengths being made to suit the different heights required. These tubes are expanded in holes in the headers, which are previously drilled and reamed to the size desired.

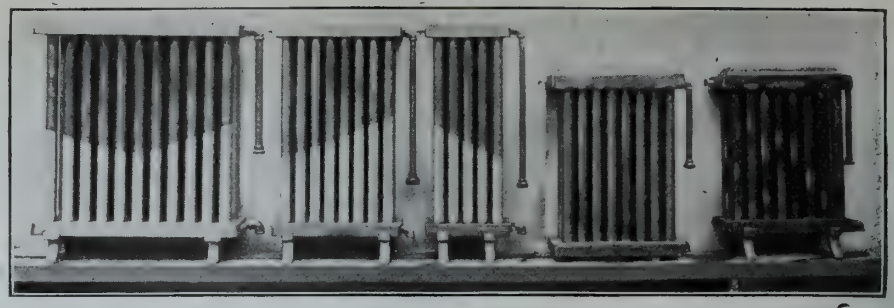


LARGE RADIATOR

The heating of the St. Augustine Church calls for 20,000 feet of radiation, and the volume of water in the entire system will be 180 gallons. For a similar radiation on other systems, the approximate quantity of water would be close to 1,800 gallons. The water in the system will circulate completely through the system, at normal heating temperature, every 15 minutes, while the larger body of water in the ordinary way would require about two hours.

Another interesting feature in connection with this particular installation will be the use of a 50 h.p. Talbot boiler, oil fired, and adapted for gravity circula-

tion. Under ordinary conditions this type of boiler operates on the contra-flow principle, but owing to the absence of forced circulation, the change to the natural method was found advisable. The Montreal General Tool Co. do not propose engaging in the heating business, their intention being to manufacture these radiators for the trade. This initial installation is solely for practical demonstration of the system on a large scale.



A GROUP OF VICTORY RADIATORS

SOME ELEMENTS OF ECONOMY IN THE BOILER ROOM

By F. A. McLean

MANY a boiler is condemned and thrown out of service long before its useful life would have been ended had it been properly cared for and a few simple steps taken to keep it in good condition. Too often the fires are pulled and the water blown out of the boiler while the brick work is still hot, with the almost inevitable result that the tubes are soon buckled or split.

In many plants it is customary to scale the boilers at stated intervals of every six months or more, and while in some cases this may be all right, in the majority of instances it is not, and it would therefore be better to inspect the boilers frequently and have them cleaned as often as it seems necessary, whether it be three days or three months, instead of waiting until it is an absolute necessity. Many men do not realize the importance of keeping the tubes free from scale, but when one stops to consider that a layer of scale 1/64 of an inch thick will reduce the efficiency of the boiler 5%, while if this allowed to reach a thicknes of 1/4 of an inch, the reduction in efficiency will reach as much as 86% or more, it is readily apparent that the prevention and removal of this scale is a subject worthy of very careful attention.

There are on the market at present a number of chemical compounds which are of considerable value in preventing the formation of scale, as well as several sizes and types of scaling equipment designed for operation on steam or compressed air, the respective merits of which are well worth looking into. Sometimes a boiler is thrown into the discard or sold at a sacrifice, on the ground that it has not sufficient capacity to do the work required of it, when if it was thoroughly cleaned it would be plenty large enough for the work in hand.

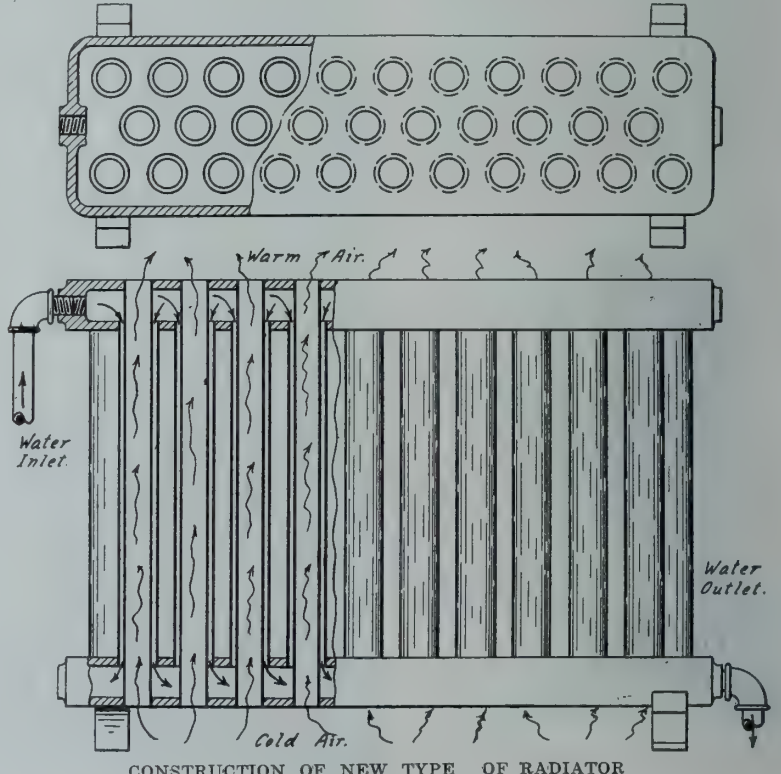
With the high cost of fuel which prevails at the present time, it seems well to remember that the output of the boilers will be reduced about 9½% by a layer of soot on the heating surfaces 1/32 of an inch thick and where this is allowed to gather until it reaches a thickness of 1/4 of an inch, the reduction in efficiency will amount to 80% or more.

In most plants steam is used for blowing out the boilers, and the water of condensation makes this a nasty job, and at the same time the heat of the steam makes the hose hard to hold, which probably accounts for the fact that the men in charge of the boilers do not feel inclined to clean the boilers as often as they should. Where compressed air at a pressure of 80 to 100 pounds per square inch is available, it will be found of particular value for this class of work and, at the same time, it provides a ready source of power for the operation of mechanical tube scaling equipment.

Where automatic stokers are installed, it sometimes happens that they are not in as close harmony with the rest of the plant as they should be, due to the installation of a type of stoker which is either too large or too small for the boilers in use, or one which is not adapted to handling the kind of fuel available. When properly installed, the automatic stoker is a very useful piece of power plant equipment, but it is well to remember that a style which works very well with a certain type of boiler and fuel, may be a failure when used on another type of boiler, or with a different grade of fuel, and care should be taken to see that the stoker is not like the whistle on Mark Twain's steamboat, which caused the boat to stop every time it was blown.

In some plants a considerable amount of heat is lost through cracks in the brick work of the boiler setting, and it is therefore a good plan to see that this is as tight as possible. When properly fitted, dampers will often save as much as 25% of the heat which would otherwise be wasted. Some husky firemen pride themselves on the amount of coal they can shovel per hour, rather than on the amount of steam they can produce per ton of coal consumed per hour. Generally speaking, it is better

Continued on page 35



CONSTRUCTION OF NEW TYPE OF RADIATOR

Challenging Board of Commerce

Delegation Asks Government to Reconstruct the Organization—Board Wants Supreme Court to Define Its Status and Presents a Stated Case—Interesting Developments Are Expected Shortly

OTTAWA, January 14.—Various important business organizations, representative of both retail and manufacturing interests, are making it unmistakably plain to the Government that the workings of the Board of Commerce are meeting with anything but their approval. Important developments which may result in the Board as at present constituted being considerably altered and its powers more definitely defined, are expected.

Those interested in challenging the activities of the Board of Commerce, it is stated, include such organizations as the Canadian Manufacturers' Association, the Retail Merchants' Association, the Canadian Credit Men's Association, and other organizations.

Will Find Out

In the meantime the Board of Commerce, on its own behalf, has submitted to the Supreme Court of Canada a stated case and asks that the tribunal establish the Board's jurisdiction.

At the meeting to-day a delegation from the Dominion Board of the Retail Merchants' Association of Canada, which is holding its annual meeting here, presented a resolution which had been adopted and which included the following:—

First—That the Board of Commerce be reorganized and that its personnel consist of a consumer, a producer, a manufacturer, a retailer and a chairman with judicial experience. They recommended that Judge Robson retain the latter position. By implication it would appear that they desire the removal of W. F. O'Connor.

Second—That the board be reconstructed to take the nature of an Inland Trade Commission, one of whose duties it would be to regulate the operations of wholesalers who refuse to sell to certain retailers and to supervise all agreemade by th delegation. These were, The recommendations of the delegation in this regard were somewhat vague.

Third—That the price-fixing functions of the Board be abolished on the ground that the exercise of them constitutes a restriction on trade and production.

Have Found No Combines

The resolution claims that the investigations of the Board in regard to retail merchants have not disclosed any combines or excessive profits; that the element of competition among retail merchants prevents undue profit making; that conditions of merchandising in the various parts of Canada are so varied that no general regulations as to margins of profit can be made which will be fair to the merchants and the consumers; that the orders of the Board of Commerce have resulted in a great deal of disturbance in retail trade circles and that the uncertainty as to what further orders will be made from time to time is still more disturbing not only to retail merchants, but to manufacturers, wholesalers, bankers, the laboring classes and consumers.

They Have Suggestions

A series of further suggestions as to "How the Board of Commerce would be of greater service to Canada," were made by the delegation. These were, mainly:—

The Board of Commerce should meet properly appointed committees from the Canadian Manufacturers' Association, the Wholesale Merchants' Association, the Retail Merchants' Association, the United Farmers and other organized commercial bodies to secure proposals how trades could be improved by proper regulations.

Instead of the court attempting to dictate to the commercial classes how they should conduct their affairs, they should become a useful court to decide on the evidence laid before them on any commercial matter.

Should Give Reasons

All agreements made either by manufacturers among themselves, between the manufacturers, wholesalers or retailers, etc., should be laid before the Board of Commerce, and, if necessary, parties should appear to give reasons why the agreements were made.

All price-contract agreements regarding trade-marked goods should be laid before the Board for final ratification.

That charges could be made to the Board by any person subjected to unfair and unethical methods of trading, and those engaged in unfair practices dealt with.

Further suggestions made were that the Board should be given authority to make recommendations to the Government if any commercial legislation is found to be operating unfairly; that all agents or subsidiary agents in connection with the Board should be abolished; that all classes of the community buying or selling merchandise should come under the operations of the Board; that the Board should devote their time to seeing that the proper channels of trade are not interfered with, and that all statistical reports in connection with commerce should come under the direction of the Board.

No Excess Profits

Joseph Banfield, of Winnipeg, who presented the case, declared that the Board had found no excess profits or unfair dealing among the retailers. It was useless to seek to redress a wrong which did not exist. "It is not so much," he said, "what the Board does as what it threatens to do which injures us and that injury affects the wholesaler, the manufacturers, the banks and everybody else."

Sir Henry Drayton asked what was meant by threats.

"We hear of a man being threatened for selling sugar at a cent or so over the fixed price," said Mr. Banfield. "The Board appears to go after us retailers because we are closest to the consumers."

Asks Court Questions

In the meantime the Board is submitting the following questions to the Supreme Court of Canada:

1. Whether or not Section 17 of the Combines and Fair Prices Act is intra vires of the Parliament of Canada. This section deals with the undue accumulation of necessaries of life.

2. Whether or not the Parliament of Canada has power to establish a court of record or any other hearing or determining body.

Question of Penalties

3. Whether or not the Parliament of Canada has power: (a) to impose penalties for the acts or omissions which are declared to be offences; (b) to authorize and require the superior courts of a Province to record and enforce the orders of the Board.

4. Whether or not the Board has jurisdiction to decide as to what shall be deemed an unfair profit upon transactions of sale of necessaries of life which transactions are originated and completed within a Province.

5. Whether the Board has power to decide what shall be an unfair profit in transactions of sale of an interprovincial character.

6. Whether or not the Board may restrain or prohibit persons from exporting commodities being necessaries of life from Canada, or from one Province to another in cases where the practice of so exporting is in the opinion of the Board designed or calculated to unfairly enhance the cost on price of such commodities.

At the annual meeting of the Retail Merchants' Association, attended by more than 600 delegates, among other subjects discussed was that of the co-operative stores, and a resolution was passed voicing the strong opposition of the Association to any legislation which would give these stores any special advantages which would be detrimental to the retail trade of the country. The delegates took this stand on the ground that the operations of co-operative

stores, after due investigation by competent authorities, have not been found to be according to legitimate methods of merchandising.

The mail order houses were also under fire, and the opinion of the delegates was unanimously to the effect, with regard to the parcel post service, that all parcels by mail should cover the cost of carrying them; that no portion of the cost of operating the parcel post system should be applied to the cost of carrying letters in the mail.

The Government will also be requested to provide that there shall be no increase to the "limit size" of the parcels to be carried by the system.

Against Eight-hour Day

The convention went on record as being unanimously in favor of daylight saving for towns and cities, and opposed to a legislated 8-hour day. In this respect it was claimed that the legislation enjoyed now, which gives to each Province the power to regulate the hours at which shops may open and close, according to the desire expressed by the majority of the merchants concerned, is sufficient, without the necessity for a flat 8-hour day, which, it was declared, would be unworkable for the retail trades.

Clothing Profits

The board went into the question of the order of the Board of Commerce, relating to the limitation of profits on ready-made clothing. The order of the Board provides that the profit upon suits sold at $25 shall not be more than 26 per cent., while the limit on suits of a higher value is placed at thirty-three and one-third per cent.

It was decided to ask the Government to change the order to read that a flat margin of thirty-three and one-third per cent. shall be permitted retailers upon all suits, with the exception of extreme styles.

Would Bar Orientals

Retail merchants from the West voiced objection to Oriental immigration and it was moved by Mr. J. H. McRobbie, of Vancouver, that the Government be memorialized that all Oriental immigration to Canada be prohibited.

Western delegates stated that the Chinese were embarking in the clothing and grocery trades to the dissatisfaction of the retail merchants.

The clothiers' section of the Association suggested that the Board of Commerce order should be altered to allow retail clothiers to add $2 to the price of each suit, to take care of the cost of alterations and fitting.

Weather Conditions Affected Business

Regina, Sask.—The very important part that weather conditions play in connection with business activity is emphasized in returns which have just been completed and show that business failures for 1919 totalled 91, with a liability of $816,898.52, as compared with 75 in 1918, with a liability of $593,930.54.

In the western part of the province, in both the northern and southern sections, the grain yield was practically a failure. In many other sections, while there was an average crop, it was considerably spotted. The destruction by hail was much greater than in 1918.

Wholesalers and jobbers in practically all lines of staples report a considerably greater volume of business compared with 1918, but the higher cost of goods acted as a deterrent to some extent in paying for same. Many merchants ordered greater amounts of stock than were really necessary, thinking that part would be back ordered, consequently most of the orders were practically filled and the merchants were overstocked.

DRAFTING COURSE

(Continued from page 16)

If the draftsman is careful to rule every line as it comes along the line of the straight edge, he will be able to do his work more rapidly than if he rules only a small section of the sheet at a time.

The blade of the T square should be carried to the top of the drafting board, and the ruling commenced there.

Will be Difficult

If the pen is laid aside for a few minutes, some difficulty will be experienced in getting the ink to run unless the pen is cleaned and refilled. Sometimes the flow of ink may be started by touching the point of the pen to the hand.

If the reader does not make the mistake of the beginner in trying to rule very thin lines, and if he will keep the pen moving, he will not find it necessary to be continually wiping the ink from the pen.

After the pen has been used for some time it will become so dull that it must be re-sharpened; but it is not likely that the reader will require to sharpen the pen until after a great many of the exercises of this course have been drawn. Instructions regarding the sharpening of the pen will be given in a later article.

The Protractor

The protractor is an instrument used for the purpose of measuring the degrees of an angle. When its use is required in some of the later exercises a detailed description of the instrument will then be given.

Tracing

The draftsman will find that he saves time and saves his eyes if he makes the penciled drawings directly on the tracing cloth or paper.

Unless the tracing cloth or tracing paper is very transparent, and the pencil lines under the cloth distinct the strain on the eyes will be considerable.

Do not try to trace under a very bright light; the tracing cloth reflects so much of the light that, at times, the eyes sense nothing but a nerve-wracking glare.

After the inking in is finished, the pencil marks may be removed from the tracing linen by the use of gasoline or an art-gum eraser.

Duster With Chalk

Before attempting to apply ink to tracing cloth, the cloth should be dusted with powdered chalk; afterward the chalk should be rubbed over the surfaces where the inking is to be done, and then, finally, the cloth should be dusted with a soft cloth or a piece of chamois skin.

Some draftsmen prefer to work on the glazed side of the cloth; but we recommend the student to use the dull side, as he can there easily do pencil work.

Some Don'ts

1. Do not leave ink drying in the ruling pen; it will corrode the pen.

2. Do not leave the set-squares lying on an uneven surface.

3. Do not leave the ink bottle uncorked.

4. Do not use a blotter on a drawing.

5. Do not try to scratch out inked lines with a knife—use the rubber eraser.

6. After starting to rub a line do not change the angle of the pen or pencil. One of the ear-marks of the amateur draftsman is the way he wobbles his pencil around when ruling a line along the straight edge.

7. Do not try to make letters without first ruling guide lines.

8. Do not hold the pen, the pencil or any of the tools so tightly that the fingers are cramped. Try and see how lightly, and yet firmly, you can hold the tools.

9. Do not moisten the lead of the pencil on the lips or tongue. A person might naturally suppose that a warning like this is unnecessary, in the majority of cases it is; yet it is a fact that some men do not think that a pencil can be properly used until it has explored the user's mouth.

10. Do not use the scale as a straight edge when ruling lines. The man that uses a scale for such a purpose is almost sure to belong also to the pencil moisteners' association.

11. Do not hold the pencil or pen between the first and second fingers.

SEPTIC TANK PLANS

The Editor, SANITARY ENGINEER:

We are enclosing herewith tracing of the plan of a septic tank for a new eight-room school, which the architects wish us to put in. There is 100 feet of field tile nine feet below the surface.

We are dubious of the tank giving satisfaction if constructed as shown in the plan, and we are anxious to have your opinion regarding the same, with any alternative suggestion you might care to make.

Yours truly,
JAMES YATES & CO.,
Brandon, Man.

The Answer

The general design and layout of the tank is quite correct and should work out satisfactorily, but would suggest that the pipe connection between the two tanks terminate at the water level as the sludge in the digestion chamber should under no circumstances have possible connection with the oxidation compartment; the screen will not prevent this unless extremely fine mesh is used and then there is every possibility of same choking up and throwing the tank out of operation.

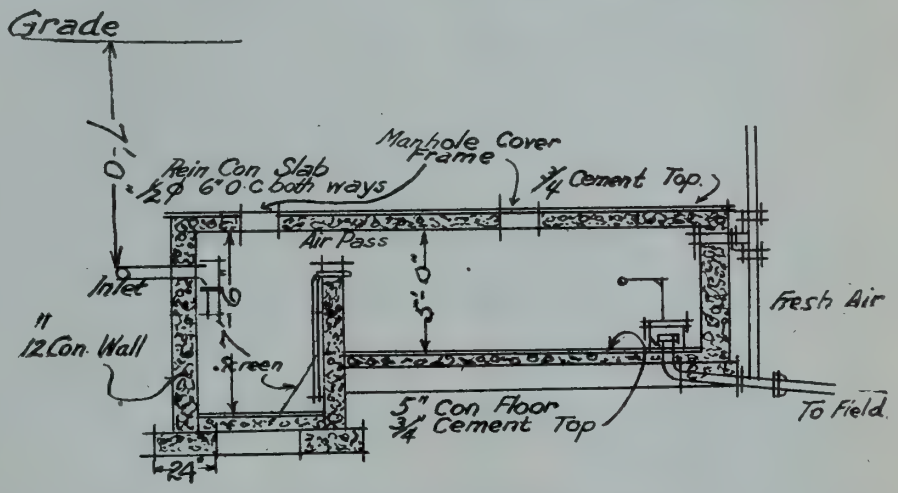
As no particulars are given with regard to the number of gallons of sewage to be treated daily, the size of the tank cannot be correctly stated, but sufficient the total flow should be allowed so that theh total flow can remain in the tank for 18 hours.

Amount of Tiles

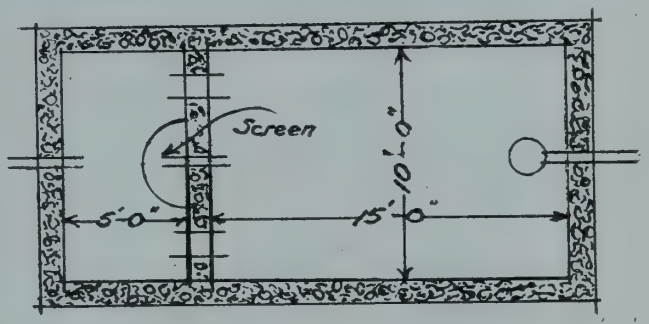
The amount of land tiles required depends upon the nature of the soil; in sandy or open soils about one foot of 4 inch tile for each gallon of liquid discharged, and in heavy clay soils two feet of 4 inch tile is required per gallon.

The depth of the tank from the grade protects same from freezing, but it would be advisable to keep the drainage tiles as near as possible to the surface because the purification of the tank effluent depends upon aerobic bacteria which live and thrive only in air and sunshine, and the tiles should be laid with little fall and ample opportunity for circulation of air both through and around the pipes.

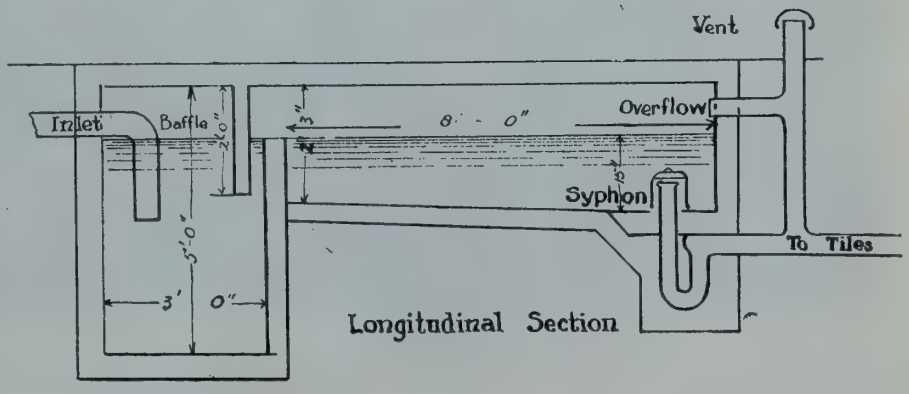
The accompanying illustration shows a tank designed on similar lines, and we would suggest the baffle wall in preference to the pipe.



Section of Septic Tank



Plan of Septic Tank



Longitudinal Section

Stoves and Ranges Advance 10 to 20%

Increases Made All Along the Line for Stoves and Special Ranges — The Result of Advancing Costs for Raw Materials, Labor and Freight Charges

DURING the last day or two important advances for stoves and ranges have gone into effect, the increases varying, and ranging from 10 per cent. to 20 per cent. The actual increases effective are given as follows by one of the Canadian stove makers—Standard stoves and ranges, 20 per cent. advance; lighter grades, 15 per cent.; gas and electric stoves and ranges, 10 per cent. It will be readily understood that the heavier types of better ranges containing much more, and very often, superior metal, are naturally subject to the greater advance.

Is No Surprise

SANITARY ENGINEER has predicted the tendencies of the stove market for several weeks past and outlined that advances were not only likely, but bound to come, and that these would be the result of conditions that developed, largely, outside of Canada. These forecasts have been made, not only in the market reports, but several special articles have been published on the trend of the market, all indicating the upward tendencies. Therefore, the advances were to be anticipated.

In the first place, pig iron is now advanced to a price that is from $5 to $7 per ton higher than the market for a few weeks ago. This is one of the very first and most important contributory causes of the advance.

Moulders have, of late, been asking for, and insisting upon a greater return for their labor. They have been getting these increases from time to time, and as they are a class of labor which command a considerable return for the work they perform, the second of the important considerations is that embodied in these facts.

Freight and cartage costs, the third assigned reason of the above manufacturer, have so materially advanced as to make higher prices for stoves and ranges necessary.

Future Delivery and Prices

Asked as to the probability of the new schedules, now effective, (and which apply as from January 8th) holding for some time, one manufacturer said, "The new prices will probably apply for the next five or six months."

Another informant would not make a definite forecast, but stated that the probabilities were that there will be no early increases over the new schedules just made effective.

Next, then, a consideration of the delivery problem was introduced, and SANITARY ENGINEER was informed that, for the time being, manufacturers will be able to make fairly prompt deliveries, but for how long, is uncertain. "Bookings will be taken care of," was the comment from one source. "Very uncertain," was the reply of a second manufacturer. It would, therefore, appear that with production calling for raw material in immensely large quantities for so many diverse lines of goods, stove makers will have their hands full in taking care of trade requirements. They, in common with manufacturers of many lines of goods, simply will not attempt to forecast the future.

One of the essentials in displaying stoves is to keep the stock looking its best. Stoves, if given a little attention, will make an attractive showing grouped in the store. It is always easier to sell merchandise that looks new and bright and it is a good ad. for the store.

ASBESTOS AND ITS MANY USES

(Continued from page 20)

Plastic Cements

Plastic cements are made of the same combinations of materials used for pipe coverings.

Loose Fibre

Loose asbestos, mineral wool, etc., is used for filling in around pipes where it is difficult to apply ordinary forms of pipe covering.

Air Valves

The valves used in freeing a heating system from air are of types varying from the simplicity of the hand-operated pet-cock to that of the intricate mechanism of the automatic air vent and vacuum valve.

Practically all automatic air vents used in steam systems consist of an outer casing containing an expansion member of metal or of vulcanite.

Sometimes, in addition to the expansion member, there is a float placed in these valves, set so that a sudden rush of water will lift the float and close the vent opening.

Liquid Is Vaporized

In certain valves, the expansion member is in the form of a thin brass cylinder, partly filled with a volatile liquid and hermetically sealed. When steam strikes the cylinder, the liquid is vaporized and expands the cylinder so that it closes the vent opening.

Air valves are sometimes fitted with drip connections, for the purpose of carrying away the water that may escape from the best of air valves. The provision of a drip connection prevents the soiling of floors and furniture from escaping steam and water, and also carries away the objectionable odor that at times comes from air vents on steam-heating apparatus.

The air line may be vented to the atmosphere by way of the chimney, and dripped to the wet return at the boiler.

Vapor System Air-Valves

In a later article, we intend to describe the air valves used in vacuum and vapor-vacuum work; but, because it is often the custom of fitters to use a valve having neither expansion nor flotation members for such work, it is now our purpose to describe such a system.

The air valve resembles an ordinary "street" elbow, with the male end of the valve entering the radiator. The male end of the valve is closed by a small plug with a hole drilled through its centre. The other end of the valve is fitted with a union that connects the drip pipe and the valve.

Principle of System

The principle of this system is based on the assumption that steam entering the radiator will be pretty well condensed before it reaches the vent opening; and it is a fact that where a very sensitive damper control is connected to the boiler, that the steam pressure will never be great enough to cause any appreciable loss of vapour by way of the air line.

If the plug in the vent should be made of some corroding material, it is a certainty that the small needle-like hole will be entirely closed within a very short time; so it is well that the fitter make sure of the non-corrosive properties of the plugs that he is to use.

In a system of this kind the air line is vented to the chimney and dripped to a small tank, connected to the boiler.

The Air Line

In an ordinary residence the air line need not be greater than ½ in. in diameter.

The air line for forty to fifty radiators should be ¾ in. in diameter.

The air line risers should be ⅜ in. diameter, reducing to ¼ in. at the air vents.

The tank may be proportioned as follows: For ten radiators, a four gallon tank; for forty radiators, a six gallon tank; adding to the tanks capacity at the rate of two gallons for every twenty-eight additional radiators.

Air Valves for Hot-Water Radiators

About the safest air valve for hot water radiators is the ordinary pet-cock.

Where automatic air valves must be used in hot water systems, a float valve similar in construction to a steam trap may be used. In a valve of this kind the float drops as the air collects and as the water level is lowered in the valve. The dropping of the float releases the check in the vent opening so that the air may escape. As the air escapes and as the water rises it lifts the float high enough to close the vent.

SOME ELEMENTS OF ECONOMY IN THE BOILER ROOM

(Continued from page 30)

to fire a little at a time instead of by fits and starts. It is interesting to note that one of the large automatic stoker manufactures in the United States estimates that fully 80% of the boiler plants of the country are overloaded, either through ignorance, or by the addition of equipment which was not thought of at the time the installation was made. This is false economy, and is not fair to the builder of the boiler. When the boilers are purchased, it is well to provide a little leeway to take care of any additions to the plant which may seem necessary at some time in the future.

BOY, PAGE SIR ISAAC NEWTON!

Manitoba "Free Press."

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

ADVANCED prices and firm, higher price tendencies continue to be a feature in the sanitary, plumbing and heating market and many important advances have taken place. Among these advances are: Solder, which jumped about 4 cents per pound. Lead and waste pipe also advanced. Lead traps and bends, lead sheets, oakum, wool and cotton waste are all quoted at higher prices. Stoves have advanced, some lines as much as 15 per cent.

This season of the year is usually quiet and given over to stock-taking, housecleaning, rearranging campaigns, etc. This unseasonable activity, then, is very significant of the general conditions of the market, which, it is stated, will prevail during the present year.

The plate situation has as yet not been relieved and many stocks are reported to be exhausted with little hope of any large quantities coming immediately to relieve the situation.

Enamelware is said to be coming better, but it is believed that if the future demand turns out anything like what is anticipated, that manufacturers will not be able to supply the demand. Pipe skelp is a factor in the pipe situation and may cause further shortages unless manufacturers are able to procure larger supplies. The high rate of exchange still continues to be a factor for higher prices.

TORONTO, Jan. 15. — Many important price changes are again noted in the sanitary, plumbing and heating lines. Among the most important changes are: Solder has advanced approximately 4 cents per lb. Lead pipe and lead waste are up 1½ cents per lb. Lead traps have advanced about 15 per cent. Oakum is quoted higher; also cotton and wool waste. Stoves have advanced in some lines about 15 per cent.

The enamelware situation is somewhat relieved, and manufacturers state they are well up with present orders. Eavetroughing is quiet, but may advance. Waste materials are also quiet, but the situation may change any time, as, it is believed, many are holding back, waiting for developments.

However, many are looking forward to one of the greatest years of expansion and are looking for one of the largest turnovers in their history, regardless of high prices, it is stated.

Waste Materials Firm; May Soon Show Activity

WASTE MATERIALS.—The market for scrap and waste materials is quiet and very firm. It is stated that many are holding back in order to get a better view of the situation as regards future demands, prices, etc. The following are the present quotations:

DEALERS' BUYING PRICES

Pipe scrap	....	10 00
Stove plate, per ton	....	17 50
No. 2 busheling	....	11 00
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 07
Scrap zinc	....	0 06
Heavy copper	....	0 17
Wrought iron, No. 1, per gr. ton	....	14 00
No. 1 machinery cast	....	22 00
Heavy melting steel	....	14 00
Old rubbers, boots and shoes	....	0 06
Overshoes, lumbermen's rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 03½
Heavy lead pipe	....	0 05¾

Cotton Waste Advanced About 3½ Cents Per lb.

COTTON WASTE has advanced, although the demand for waste has seasonably slackened, and present business is reported quiet. This, then, may be an indication of the coming season, which has been predicted to be one of great expansion and higher prices. The following are the present quotations:

WASTE

Cream, Polishing	....	0 25
White—		
XXX	....	0 18
XX	....	0 16¾
X	....	0 15¾
XC	....	0 13½
Japanese	....	0 13
XXX Extra	....	0 22½
XX, grand	....	0 21
XLCR	....	0 19½
X Empire	....	0 18
X Press	....	0 16½
X Special	....	0 15
Colored—		
No. 5	....	0 13¾
No. 1	....	0 12¾
No. 7	....	0 11¾
No. 1A	....	0 10¾
No. 1B	....	0 09¾
Fancy	....	0 18
Lion	....	0 16
Standard	....	0 14
Popular	....	0 12
Keen	....	0 10

Above lines subject to trade discount for quantity.

Wrought Iron and Steel Pipe Unchanged; Firm

PIPE, WROUGHT IRON AND STEEL.—The skelp situation has shown little improvement, and the scarcity is still very pronounced. Jobbers and manufacturers are looking for a big demand this year and state that whether they are able to supply this depends greatly on their ability to secure the raw materials, and also on the labor situation, which has proven such a problem during recent years.

The following are the present quotations:

WROUGHT PIPE

Price List No. 42, Dec. 9, 1919.

Standard Buttweld

	Steel Blk.	Steel Gal.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Gal.
	Per 100 feet			
⅛ in.	$6 00	$8 00	$....	$....
¼ in.	4 65	6 78	5 13	7 26
⅜ in.	4 65	6 78	5 13	7 26
½ in.	6 16	7 74	6 84	8 42
¾ in.	7 76	9 89	8 68	10 81
1 in.	11 48	14 62	12 84	15 98
1¼ in.	15 53	19 78	17 37	21 62
1½ in.	18 56	23 65	20 76	25 85
2 in.	24 98	31 82	27 94	34 78
2½ in.	39 49	50 31	.....	.....
3 in.	51 64	65 79	.....	.....
3½ in.	65 78	82 80	.....	.....
4 in.	77 94	98 10	.....	.....

Standard Lapweld

	Steel Blk.	Steel Gal.	Gen. Wrot. Iron Blk.	Gen. Wrot. Iron Gal.
	Per 100 feet			
2 in.	$ 27 94	$ 34 78	$ 31 64	$ 38 11
2½ in.	40 66	51 48	46 51	57 33
3 in.	53 17	67 32	60 82	74 97
3½ in.	66 70	83 72	75 90	92 92
4 in.	79 03	99 19	89 93	110 09
4½ in.	88 00	113 00	114 00	138 00
5 in.	103 00	132 00	132 00	161 00
6 in.	133 00	171 00	172 00	209 00
7 in.	175 00	224 00	223 00	271 00
8L in	184 00	235 00	234 00	285 00
8 in.	212 00	271 00	269 00	328 00
9 in.	254 00	324 00	323 00	393 00
10L in.	235 00	301 00	299 00	365 00
10 in.	303 00	387 00	385 00	470 00

Terms, 2% 30 days, approved credit.
Freight equalized on Chatham, Guelph, Hamilton, London, Montreal, Toronto, Welland.

Wool Waste Advanced; New Prices Now in Effect

WOOL WASTE.—New prices have been announced on wool waste. This commodity has been selling at a firm price for some time, although, owing to the quiet season of the year, some had expected it to hold till the big de-

MUELLER

Self-Closing Basin Cocks

(Patented)

EXTRA PATTERN

MUELLER self-closing work requires but little more effort to operate than ordinary compression work and on this account its use is not objectionable even in private homes.

Individual inspection of every cock insures a standard of excellence embodied in all lines of MUELLER manufacture.

A1508
Code—*Arbutus*

The closing is actuated by a phosphor bronze spring, which has permanent elasticity. The tension of this spring will close against 175 pounds water pressure, yet it is easily operated on account of its roller bearing construction.

Just a few points of this service plus Basin Cock are:—

Seat washer can be replaced in but a moment's time. Unscrewing body cap, releases all working parts in one assembled unit.

Malleable Iron Locking Washer locks cock immovably on the lavatory in any position desired.

Made of high-grade red brass with careful attention to coring, machining, polishing and nickel-plating.

H. MUELLER MFG. CO., LTD.
SARNIA -- -- CANADA

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

mand started. However, this was not the case, and new prices have taken effect, which are as follows:

Wood Waste	Per lb.
Arrow	0 35
Axle	0 28
Anvil	0 22
Anchor	0 20

Conductor Pipe Holds Firm; May Advance

CONDUCTOR PIPE is selling on a very firm basis and an advance may take place in the near future. Manufacturers claim they have been able to sell at the old base prices, owing to the large amount of stock they were able to procure before the acute shortage effected the sheet market.

PIPE (Conductor) Plain	
2 in., in 10-ft. lengths, list	8 00
3 in., in 10- ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 60
6 in., in 10-ft. lengths, list	21 30

F.o.b. Toronto, Ottawa, Oshawa.
List less 10%.

Lead and Zinc Products Again Show Advances

LEAD AND ZINC PRODUCTS.—An advance throughout the products of lead and zinc has occurred and higher prices are now effective. Lead pipe has jumped 2 cents per lb. and lead traps and bends about 15 per cent. This is, no doubt, due to the soaring prices of the basic ingot metals, which have been very active of late, and the demand is said to be enormous.

The following are the new quotations:

Lead pipe, list, per lb.	0 15
Lead waste pipe, list, per lb.	0 16
Do., over 8 inches, list, per lb.	0 17
Above subject to discount of 10%	
Lead traps and bends	add 10%
Lead wool, lb.	0 16
Lead sheets, 4 to 8 lbs., sq. ft., in rolls, lb.	0 12½
Zinc sheets	0 19

Cut sheets ½c to ¾c extra, and cut sheets to size, 1c lb. extra.

Solder Has Advanced Approximately 4c lb.

SOLDER.—An important advance has occurred in solder, and new and higher prices are now being quoted. The basic metals have shown great activity of late, which seems very significant of the coming season.

The following are the new quotations:

Solder	Per lb.
Guaranteed	0 42
Strictly	0 40
Commercial	0 37
Wiping	0 36¾
Wire	0 44¼

Boiler Tubes Firm; Prices Holding Steady

BOILER TUBES are holding firm at the new prices. No change in price is immediately expected, although this price is firm and other commodities whose basic metal is iron or steel are generally showing higher prices. While the boiler tube situation is not so serious as the wrought pipe, there is a noticeable scarcity. Jobbers, however, state that tubes are coming in from the States in normal quantities and no business is being turned down. The prices are quoting as follows:

	Per 100 feet	
BOILER TUBES—	Seamless	Lapweld
1 inch	$27 00	$.....
1¼ inch	29 00	.....
1½ inch	29 50	.....
1¾ inch	32 00	27 00
2 inch	31 00	26 00
2¼ inch	35 00	28 00
2½ inch	43 00	32 00
3 inch	48 00	40 00
3¼ inch	.....	47 00
3½ inch	60 00	44 00
4 inch	75 00	56 00

Range Boilers Firm; May Be Advanced

RANGE BOILERS are holding firm at the new price previously quoted. The range boiler situation is a very firm one and difficulty is experienced in getting supplies, and, notwithstanding the quiet season of the year, the demand continues very heavy, it is stated.

Some have it that a further advance would not be surprising, and attribute it to the great scarcity of raw material, high cost of labor, with the result of lower production.

The following are the present quotations:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$12 00	$14 00
35-gallon	14 00	16 00
40-gallon	16 00	18 00
52-gallon	22 00	25 00
66-gallon	35 00	38 00
82-gallon	40 00	47 00
100-gallon	50 00	58 00
120-gallon	60 00	67 00

Oakum Prices Have Advanced as Predicted

OAKUM.—As predicted in last issue of SANITARY ENGINEER, oakum has advanced. Although present business is rather quiet, many are expecting one of the greatest years in their history. Like many other lines, waste is hard to procure.

The new prices may be significant of the coming season and are quoted as follows:

	Per 100 lbs.
Best American	$22 00
Clipper, spun	22 00
Do., unspun	20 50
Plumbers' spun	10 50

Sheets and Plates Firm; Scarcity Pronounced

SHEETS AND PLATES.—The sheet iron and steel situation continues to be in a serious condition, and it is believed that even those in control of the mills are unable to predict six months ahead. However, all are looking ahead to one of the greatest years of expansion, and the belief is that mills come through with better production this year than that of the previous, as the labor unrest is settling down and all are trying to co-operate for increased production, it is stated.

Owing to the scarcity and unsettled conditions of the markets locally it is almost impossible to quote accurate prices, as nearly all who have stocks have procured them under unusual conditions, and sheets, galvanized, 10 oz., for instance, are quoted anywhere from $9.25 to $10.50 per 100 pounds.

The following are the present quotations:

BLACK SHEETS—		
14 gauge	6 30	6 50
16 gauge	6 65	6 95
18-20 gauge	6 30	6 85
22-24 gauge	7 25	6 90
26 gauge	7 35	6 95
28 gauge	7 50	7 05
3-16 inch plate	5 95	5 55
¼-inch boiler plate	5 45	6 10

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS—	Premier		Apollo	
10 ¾oz.	$9 20	$9 80	$9 25	$10 45
U.S. 28	8 60	10 20	8 85	9 75
U.S. 2 6	8 20	8 80	8 55	9 40
22 and 24	8 00	8 20	8 40	8 20
18 and 20	7 80	8 00	8 25	9 00
16	7 55	7 80	8 10	8 80
12 and 14	7 35	7 55	7 95	8 55

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga. when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Enamelware Prices Firm; Unchanged

ENAMELWARE remains scarce, although manufacturers claim they are making more progress at supplying the heavy demand, which still continues heavy, for this season of the year. Owing to the uncertainty in the manufacture of this commodity, it is stated that it is hard to know what output to continually depend on, as in the manufacture so many factors enter into the operation that may spoil the article being made, so that it will have to be scrapped, and thus the piece is a total loss. Especially is this true of baths, and when it is known that a small portion of sulphur in the metal may spoil the piece, it will be better understood how uncertain it is to depend on a stipulated output.

Manufacturers so far seem to be fairly well up with the demand, but state that it is almost impossible to know so far in advance, whether a shortage, as prevailed the latter half of last year, will occur again, or whether all demands will be satisfied as formerly.

The following are prices on some of the better known lines:

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4045			11 05
18x24" Apron F154 or P3845 or P3847			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9 05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Stoves and Ranges Have Advanced About 15%

STOVES AND RANGES. — Some manufacturers have advanced some of their lines of stoves as much as 15 per

Continued on page 40

TRADE MARK J.M.T. REGISTERED A GUARANTEE OF QUALITY

An Injector with a Splendid Reputation for Efficiency

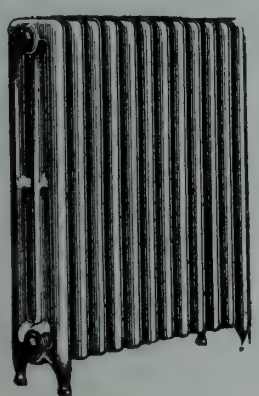
Morrison

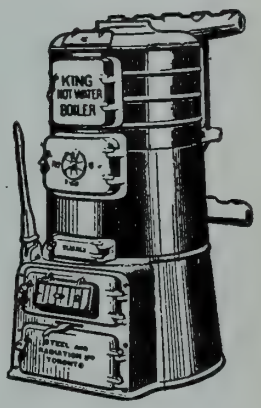
Injectors that offer 40 pounds more field. A reliable, trustworthy injector that sells as well as it operates. Morrison High Pressure Injectors operate successfully on 20 lbs. low to 220 lbs. high steam pressure, from 4 to 300 horse-power, and are made in sizes from 3/8 inch to 2 inch.

For you it offers one of a line of products that are supreme in the mechanical field and sell without time-consuming argument.

The James Morrison Brass Mfg. Co.
Limited
93-97 Adelaide St. West, Toronto, Ontario

KING HOT WATER BOILERS AND IMPERIAL RADIATORS





Make a Perfect Heating System

Remember, when a satisfactory heating system is installed everyone wants to know, "Who did the work." See how simple it is to make one contract a salesman. This is only the case when the system gives perfect satisfaction.

Knowing this, why risk your reputation and success on heating systems of unknown ability. Recommend and sell King Hot Water Boilers and Imperial Radiators—the perfect hot water system—it will pay you. The King Hot Water System gives 100% satisfaction wherever it is installed.

STEEL AND RADIATION, LIMITED

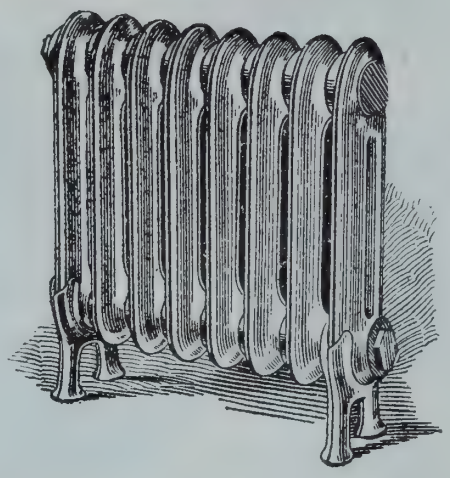
Manufacturers of Hot Water *and* Steam Boilers *and* Radiators; Fenestra Steel Sash *and* Concrete Reinforcing

Head Office: Fraser Ave., Toronto **Sales Offices: Montreal Toronto, Quebec**

A Complete Stock of all Lines is Carried at Our Montreal Warehouse
Western Agents: The J. H. Ashdown Hardware Co., Ltd., Winnipeg

Rads at Your Price

750 to be cleared



Radiators made by American Pressweld Co. of Detroit. Press steel and welded standard steam or water radiators, eight section, 18 inches high, single column, ⅛ inch air vent opening. These are absolutely new and guaranteed perfect. Wholesale price laid down in Canada, $9.50. **Must be cleared at once. Write and make an offer.**

Salisbury Electric Co., Limited

615 Yonge St., Toronto

cent. This, it is stated, is due to the scarcity and high cost of raw material and labor. An important agreement has recently been made between the stove plate moulders and manufacturers, whereby the moulders secure an 8-hour day, as well as an increase in wages. This is also a factor in the higher price of stoves, it is stated.

Soil Pipe Firm, Scarce; May Soon Be Advanced

SOIL PIPE is still reported as none too plentiful, although there seems enough to cover present demands. The situation is also a firm one, and higher prices would not be unexpected, owing to the greatly increased cost of raw material, labor, and other factors, it is stated. All indications point to one of the best years noted for some time, and many are making preparations for handling, it is stated. The following are the present quotations:

Medium and extra heavy soil pipe, 2, 3 5 and 6 in.	10%
Medium and extra heavy soil pipe, 4 in.	15%
Medium and extra heavy soil pipe fittings, 2 in. to 6 in.	25%
8 in. extra heavy pipe and fittings	5%

PIPE FITTINGS

Cast iron fittings	10%
Plugs	22%
Bushings	25%
Unions, ¼" to 2½"	40%
Do., ⅛", 3" and larger	35%
Dart unions, ¼-inch to 2-inch	25%
Do., 2½-inch and larger	15%
Nipples, up to 4 inch	70%
Do., 4½-inch and larger	60%
Do., running thread 4-in. and under	40%
Couplings, 4-in. and under	35%
Do., 4½-inch and larger	15%

MALLEABLE FITTINGS

	Black	Galv'd
Malleable Fittings, Class A, lb.	$0 57	$0 72
Do., Class B, lb. net	0 25	0 35
Do., Class C, lb. net	0 19	0 25

Plumbers' Compression and Brass Work Firm

COMPRESSION WORK. — Plumbers' brass and compression work is maintaining a steady, but firm, price. Owing to the unsettled condition of the markets generally, it is hard to state just what the near future will bring. Although no lower prices are lookd for, some state that the peak has not been reached as yet, and owing to the advancing prices of ingot, metals are looking for higher prices, although their basic metals are of a fluctuating nature. The following are the present quotations:

Compression work, standard	28%
Fuller work, standard	34%
Bath cocks, compression	30%
Bath cocks, Fuller	34%
Flatway stop and waste cocks, standard	32%
Roundway stop and waste cocks, standard	32%
Brass steam cocks, standard	Net List
Globe, angle and check vales, standard	5-9%
Do., removable disc	7-10%
Radiator valves, standard	15%-23%
Do., removable disc	40-46%
Basin Cocks—	
No. 0 and 1, Fuller pattern	34%
Compression	23%
Quick opening	34%

Tin Up 3c Lb. Lead, 1c; Other Ingots Advanced

INGOT METALS.—Almost the complete list shown herewith are quoted at new and higher prices.

It is stated that there is now every reason to believe that the copper situation has changed definitely for the better. Foreign consumers are buying quite freely, notwithstanding the difficult exchange situation, and domestic consumers are making substantial purchases for delivery during the second quarter of this year. The general industrial outlook is believed to be greatly improved and constructive operations are to be carried forward on a considerable scale irrespective of the prevailing costs, it is stated.

SPELTER continues to show advances. The price is ¾ cent per pound higher, making the new quotation 12 cents per pound.

COPPER is rapidly recovering from any previous weakness and has changed definitely for the better, it is stated. This records a further advance of ½ cent per pound, the new quotation being 25 cents per pound.

LEAD is again reported at a higher figure, having advanced 1 cent per pound. The new quotation is now 10½ cents per pound.

TIN.—A further advance is again reported in tin. This advance is 3 cents per pound and makes the new price 73 cents per pound.

ALUMINUM is still quoted at 34 cents per pound. This is a firm price, it is stated.

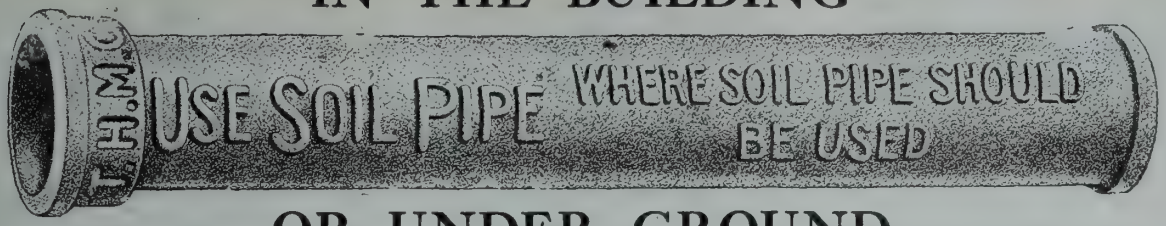
ANTIMONY shows no change, although the price is a firm one with little stocks on hand. The present quotation is 12½ cents per pound.

WE CARRY A FULL LINE OF

BOILERS, RADIATORS, WARM AIR FURNACES AND REGISTERS

HAMILTON STOVE AND HEATER COMPANY, LIMITED, HAMILTON, CANADA

IN THE BUILDING



OR UNDER GROUND

ASK YOUR JOBBER FOR T.H.M. CO. BRAND OF SOIL PIPE AND FITTINGS.

TORONTO HARDWARE MFG. COMPANY, - Toronto, Canada

WE MANUFACTURE A FULL LINE OF HIGH-GRADE RANGE BOILERS

WROUGHT PIPE

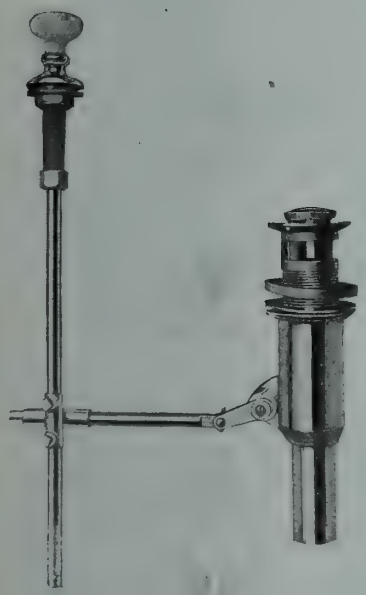
BLACK and GALVANIZED SIZES, 1/8 IN. TO 4 IN.

All our pipe thoroughly inspected, tested to 600 lbs. hydraulic pressure and branded.

All Sizes of NIPPLES (Black and Galvanized)

Ask your jobber for CT *Brand of Wrought Pipe*

CANADIAN TUBE & IRON CO., LIMITED, MONTREAL Works: Lachine, Can.



ALLINGHAM POP-UP WASTE

DESCRIPTION

Allingham Pop Up Waste (Patented), Nickel-Plated, with China Waste Knob. Indirect action (raising knob closes plug, lowering knob opens plug).

MEASUREMENTS

Diameter of flange under waste knob 1¾ inches. Diameter of flange inside hole 2⅛ inches. Diameter of flange below bowl 2⅜ inches. Outside diameter of outlet tube 1¼ inches.

The Allingham Waste is sanitary. The Waste Plug can be removed and cleaned without touching other parts. It is simple and mechanically correct. It is easily adjusted for friction or lift rod. It is reversible and can be easily changed from indirect to direct action if desired.

The Wallaceburg Brass & Iron Manufacturing Co., Limited

WALLACEBURG, ONT.

TORONTO
10 Wellington St. E. Phone: Main 2355
Mr. L. N. Vanstone

WINNIPEG
Galt Building Phone: Garry 3389
Moncrieff & Endress, Ltd.

MONTREAL
358 Beaver Hall Sq. Phone: Main 7531
J. R. Devereux & Co.

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B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR RECEIVERS
Wm. B. Scaife & Sons Co., Oakmont, Pa.

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
Canadian Wolverine Co., Ltd., Chatham.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders and Engineers, Ltd., Cornbrook, Manchester, England.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.

ASBESTOS GOODS
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

BOILERS, STEAM OR HOT WATER
Gurney Foundry Co., Limited, Toronto.
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Lord & Burnham Co., Ltd., Toronto.
Modern Heating & Eng. Co., Ltd., Montreal.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOILER FITTINGS
Fittings Limited, Oshawa.

BOILER STANDS
Fittings Limited, Oshawa.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N.Y.

BRASS GOODS, VALVES, ETC.
Joseph Breeden & Co., Ltd., Birmingham, Eng.
Canadian Brass Co., Ltd., Galt, Ont.
Canadian Wolverine Co., Ltd., Chatham.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
G. & W. G. Gummer Ltd., Rotherdam, Eng.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

CELLAR DRAINERS
Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CHAIN WRENCHES
Trimont Mfg. Co., Roxbury, Mass.
J. H. Williams Co., Brooklyn, New York.

CLAMPS "C"
J. H. Williams & Co., Brooklyn, N.Y.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
United Brass & Lead, Ltd., Toronto.

COUNTRY RESIDENCE EQUIPMENTS
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DAMPER REGULATORS
C. A. Dunham Co., Ltd., Toronto.

DEHUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

DRAINAGE FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders and Engineers, Ltd., Cornbrook, Manchester, England.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ENGINEERS
Modern Heating & Eng. Co., Ltd., Montreal.

ELECTRIC PUMPING MACHINERY
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Toronto Hardware Mfg. Co., Ltd., Toronto.

FUEL SAVING DEVICES
Modern Heating & Eng. Co., Ltd., Montreal.

FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

FITTINGS, CAST IRON, SCREWED, FLANGED, DRAINAGE AND MALLEABLE, SCREWED
Fittings Limited, Oshawa.

FILTERS (WATER)
Wm. B. Scaife & Sons Co., Oakmont, Pa.

FLUSHOMETERS
Canada Metal Co., Ltd., Toronto.
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.

FLOOR AND CEILING PLATES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

FURNACES
Gurney Foundry Co., Limited, Toronto.
Steel & Radiation, Ltd., Toronto.

GAS APPLIANCES
Consumers' Gas Co., Toronto.

GASOLINE ENGINES
Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS
Consumers' Gas Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

GLOVES, WORKING
R. G. Long & Co., Toronto.

GRATES FOR RANGES, FURNACES AND BOILERS
McIntyre & Taylor, Toronto.

GREY IRON CASTINGS
Fittings Limited, Oshawa.

HEAT GENERATORS
Galt Brass Co., Galt, Ont.
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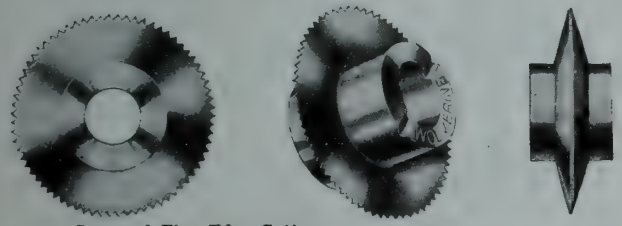

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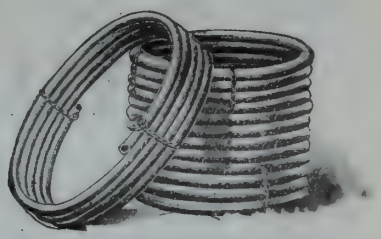

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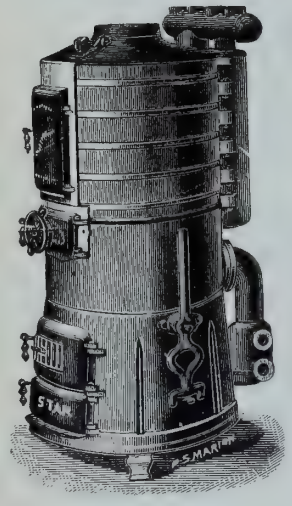

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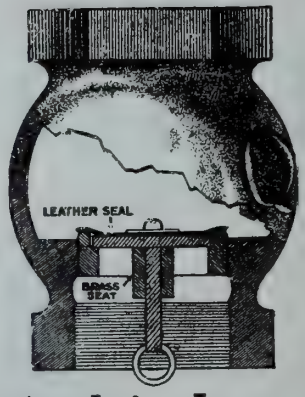

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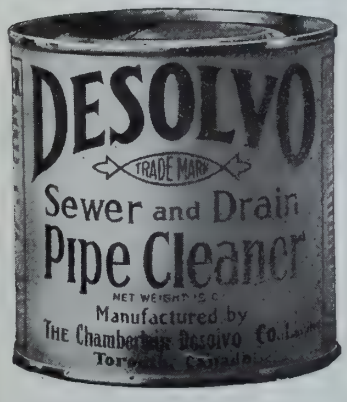

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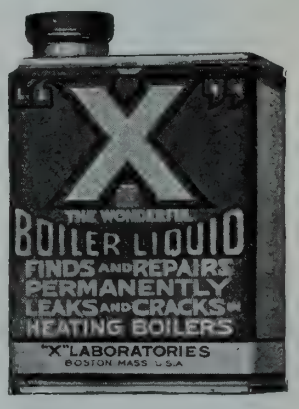

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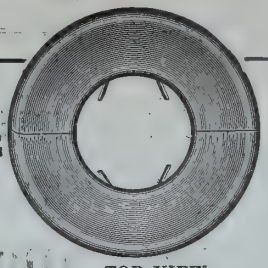

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Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

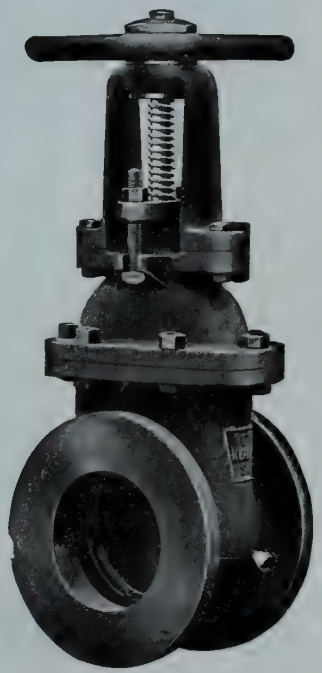
International Malleable Iron Co., Limited, Guelph, Ontario, Canada

There Are Lots of Gate Valves

Advertised and Sold

but not all of them possess that neat appearance, combined with strength and stability, which characterizes

KERR IRON BODY GATE VALVES



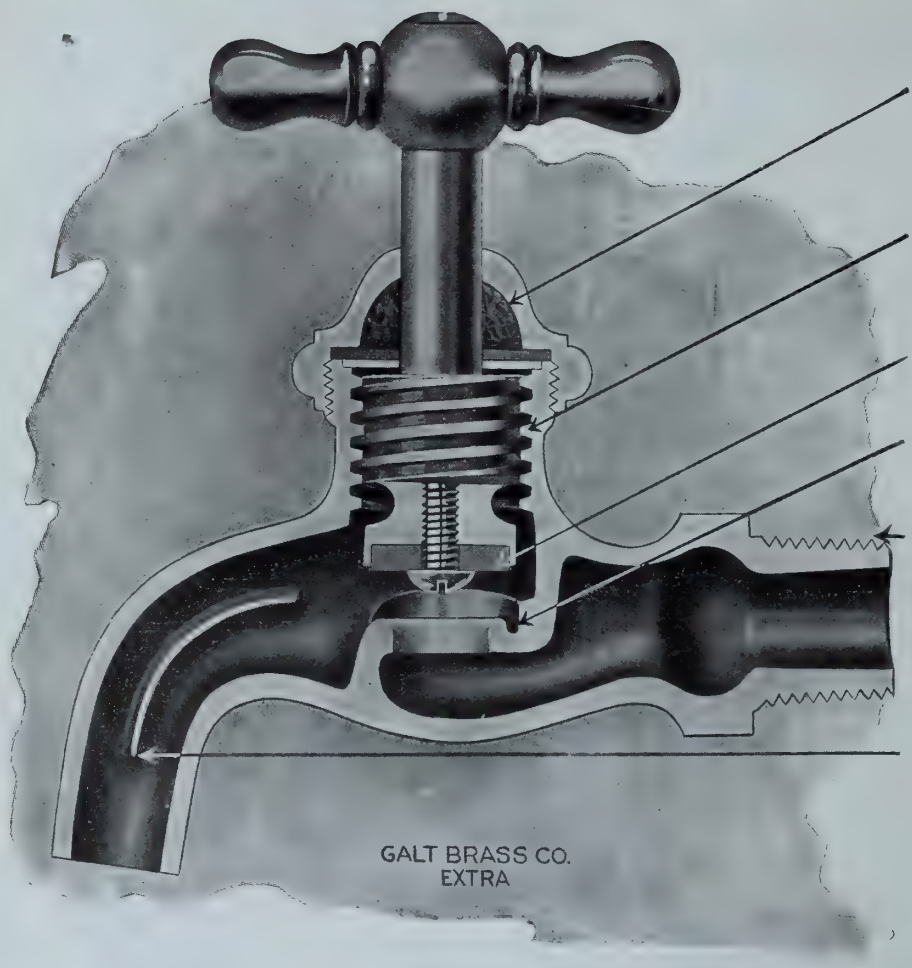
Specify KERR'S (KEYSTONE) Iron Body Gate Valves on your next order, and let us prove what we claim for them.
Our Catalogue No. 5 tells all about them. It is yours for the asking. Write us to-day.
Approved by the Fire Underwriters' Association, and Registered by Boiler Inspection Departments of Ontario, Saskatchewan and Alberta.

THE KERR ENGINE COMPANY, LIMITED - Walkerville, Ontario

"PERFECTO"

(Registered Trade Mark)

BRASS BIBBS



Well Machined—Tested—High Grade

It pays a plumber to gain the reputation of using Perfecto Bibbs and Cocks, and "Perfecto" Brass Goods of all kinds. Quality counts in the long run

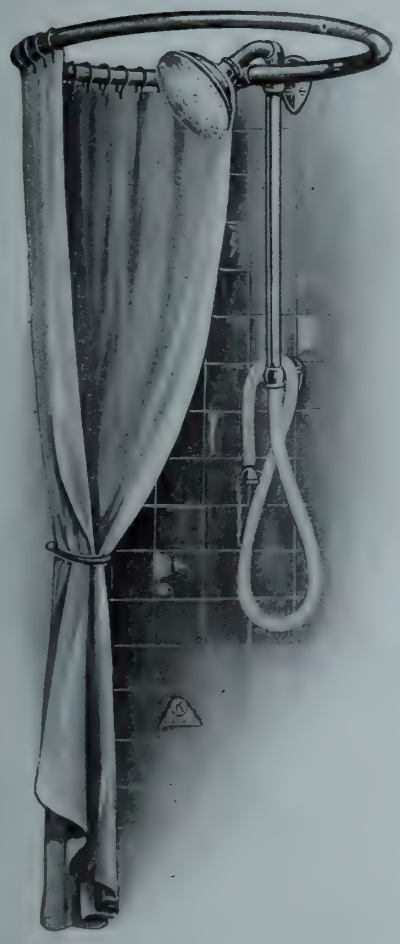
"Perfecto" Brass Goods are machined under a gauge system by which the machinists' tools are constantly subject to inspection and correction. "Perfecto" Brass Goods are as near absolute accuracy as expert care can make them. They'll make friends for the man that puts in the job.

Galt Brass Company Limited

Galt - Canada

Sanitary Engineer
Plumber and Steamfitter of Canada
VOL. XIV. PUBLICATION OFFICE, TORONTO, FEBRUARY 1, 1920 No. 3

They Are Not Going To Be Denied The Shower Now



A 932—Nickel plated Shower with rain shower head, rubber tubing faucet connection and round curtain ring, with white duck curtain and wall hook.

THEY met it first in the training camps—it was part of their treatment in the convalescent hospital—it was included in the routine of the demobilization camps.

So the best of Canada's young men have become educated to the Shower—they know what it means to their health.

It is up to you to see that they get a Shower in their homes—the kind of shower that will give satisfaction—an EMPIRE SHOWER.

Let them know that you can supply the Portable Shower illustrated here.

It is specially adapted for use when a permanent shower is not practicable in a rented house, an apartment, or other places where space is limited. It is all that a shower should be.

Empire Permanent Showers in the latest and improved designs will be in demand as well.

You are going to be called on for Shower estimates.

Write for our catalogue and order direct from us.

Empire Manufacturing Co., Limited

London Toronto Canada

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

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E. B. Plewes, 120 Lombard St., Winnipeg

TINKER TOM'S TALKS.

244

Among the many standard uses for **Galvanized Sheets** none is so familiar in the building line as—

VALLEYS—Nothing else will answer.

FLASHING—Universally used.

PORCH DECKS—Where there is a combination of resistance to weather and to wear and tear due to walking on roofs, Galvanized Sheets are alone suitable for permanent wear.

RIDGE CAPPING—Galvanized Sheets have replaced the use of wood for ridge combs and hips, being better in every respect.

Premier Galvanized Sheets are the favorites in Canada among the building trade.

Tinker Tom

Look for Talk No. 245 next week

DOMINION SHEET METAL CORP. LTD
MADE IN PREMIER CANADA
HAMILTON. CANADA.

SANITARY ENGINEER, February 1, 1920, Vol. XIV., No. 3. Published 1st and 15th of every month at 143-153 University Ave., Toronto, by the MacLean Publishing Co., Ltd. Yearly subscription price, Canada, $1.00; United States, $1.50; Great Britain and the Colonies, 4s. 6d.; elsewhere, $2.00. Entered as second-class matter at the Post Office, Ottawa. Entered as second-class matter July 1st, 1912, at the Post Office at Buffalo under the Act of March 3rd, 1879.

THE CANADIAN SOCIETY OF DOMESTIC SANITARY AND HEATING ENGINEERS

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FRANK R. MAXWELL
Toronto

Vice-President
HARRY MAHONEY
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Secretary-Treasurer
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Toronto

To the Sanitary and Heating Craft throughout the Dominion of Canada:

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MEMBERSHIP

The Canadian Society of Domestic Sanitary and Heating Engineers shall consist of representatives from Local and Provincial Societies, and individual members in cities and towns where no local or provincial society exists.

JOIN NOW

You owe yourself the honor of associating with those who are striving to raise the standard prevailing among the Sanitary and Heating Engineers of our Dominion.

To accomplish the above, we NEED YOUR ASSISTANCE and CO-OPERATION, so forward your Name and Business Address with complete information to the Secretary at once.

DO YOUR BIT, by getting in touch with your local competitor, and advise him to do likewise.

Watch this page in each issue, and remember our motto:

ALL FOR ONE
and
ONE FOR ALL

Address all correspondence to the Secretary
GARRETT F. FRANKLAND
Secretary-Treasurer
Room 303, 22 College Street
Toronto, Ontario

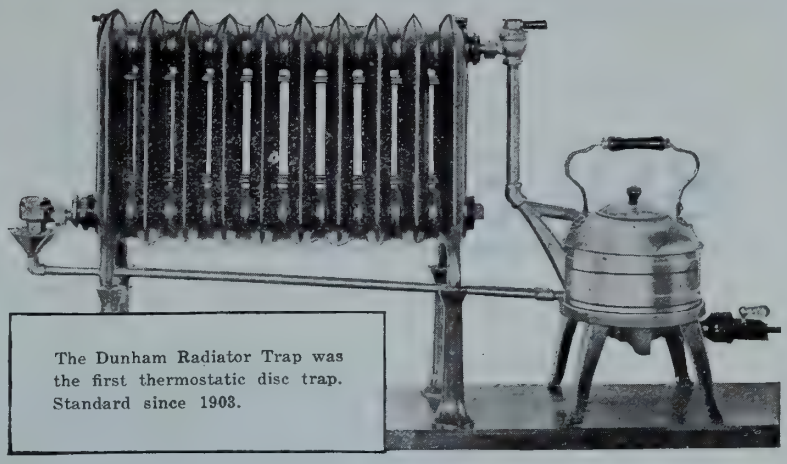
Yours for Co-operation,
FRANK R. MAXWELL,
President

Heating a radiator with a teakettle

It was done at the Ottawa Technical School before a group of engineers who were amazed at the demonstration. It proved beyond question that low pressure steam will quickly heat a radiator to 100% efficiency if the trap is right. It undisputably proved that the Dunham Radiator Trap functions perfectly.

Since 1903, the Dunham Radiator Trap has been eliminating any chance of trap trouble in thousands of installations. It was the first thermostatic disc trap. Think of this when you think of traps, and remember that the Dunham Trap is only one element in Dunham Heating Service. The entire service offers much to the man who plans, sells and installs the heating system—and more to him who pays the bills.

If you welcome suggestions that do not obligate you, get in touch with our nearest office. For authoritative information, write for booklet, "Data on Dunham Heating."



The Dunham Radiator Trap was the first thermostatic disc trap. Standard since 1903.

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Made-in-Canada

C. A. DUNHAM COMPANY, LTD.

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Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?

Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE: 136 SIMCOE ST., TORONTO

BOLSHEVIKI

A Little "Straight Talk" to the Canadian Plumbing Trade

Just now there is a fashion of attaching this name to every person and every element of the community opposed to fair play and fair dealing, to every force which stands for the cut-throat, knife-in-the-back principle. Recently a man was heard expressing his opinion regarding "Business Bolsheviki."

The persons thus mentioned were of the type who are not content to "live and let live." Their line of action is to get the other man's price or figure and cut under it, even at a loss. This results in disruption of the very best principles of business and hurts trade in any line, spreading bad feeling among the business fraternity and removing the trust and respect of the buying public.

Great pride has been felt during recent years in the advancement in business methods made by the plumbing trade,— hope is expressed that all may now earnestly assist in the suppression of Business Bolsheviki. Much blood has been shed in the last few years for the principle of the FAIR DEAL, and high quality should be encouraged in Canadian business. In every community there must be plenty of room, under modern conditions, for tradesmen to employ their time and efforts to the fullest extent without attempting to cut under opponents' fair prices. Too often a policy of price-cutting results in loss of quality, efficiency and service to the client.

To-day Canada needs business men of fair mind and high ideals. The practice of best methods and fair principles return in blessing on the heads of the men upholding them. Let us believe in permitting "the other fellow" to have his share in the distribution of the good things of business.

May we all stand for QUALITY, EFFICIENCY and SERVICE.

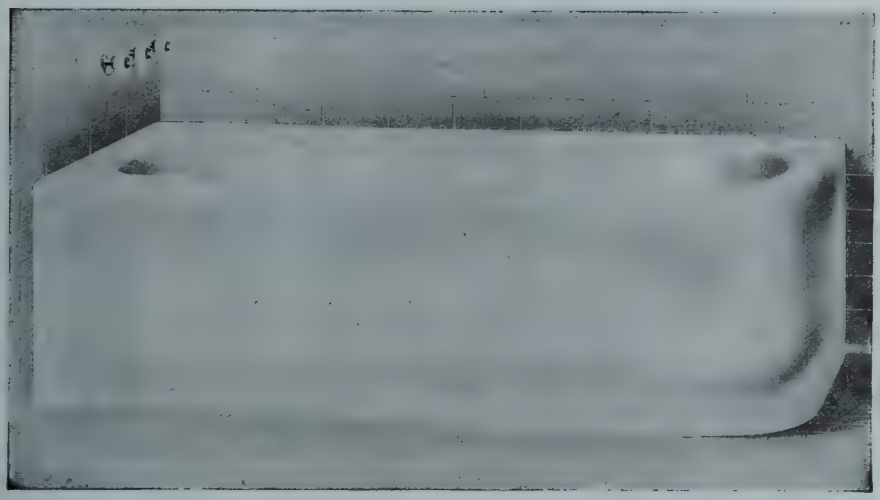
TRADE B.O.T. MARK

THE CANADIAN BRASS CO.
LIMITED
GALT, ONTARIO

CANADIAN BRASS GALT ONT

"Standard"
"Perfection" Built-in Baths

Made in One Piece Enamelled All Over



These Baths represent the last word in design and finish, and are made to build into Right or Left Hand Corner or into a Recess.

The "Perfection" Built-in-Bath is only 17½ inches high, therefore convenient. It builds into walls and floors, the absence of all dust-collecting cracks and corners meaning bathroom sanitation.

Made in 5 and 5½ foot sizes.

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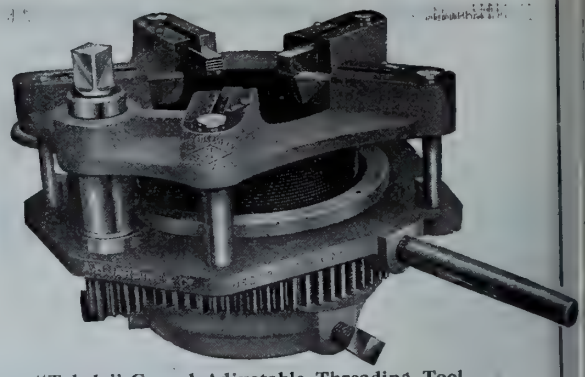
"MADE IN CANADA"

JARDINE and TOLEDO PIPE THREADING TOOLS



"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2 to 6 in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo have no cams or jim cracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

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STOP WATER WASTE

At bakeries, in the departments where fruits are washed and prepared, Jenkins Brass "Whistle" Valves are installed on hot and cold water supply lines to stop water waste. A pull of the lever instantly permits a free full flow of water which is automatically shut off by means of a spring as soon as the lever is released.

Jenkins Brass "Whistle" Valves are extensively used in bath houses, garages, restaurants and factories, and, doubtless, numerous other uses will occur to you for these substantial, quick opening valves.

Know Jenkins Valves by the Jenkins "Diamond Mark"

Catalog No. 8 free on request.

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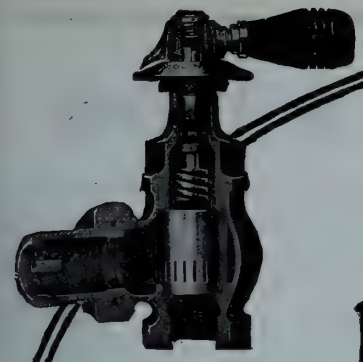

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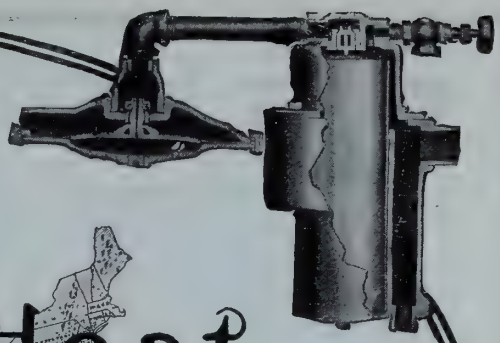
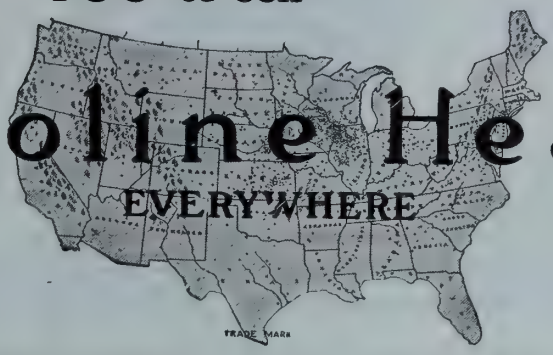
of Equipment for
YOU to sell—





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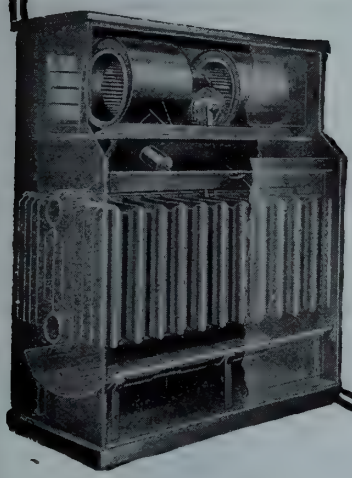
EVERYWHERE



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Liberty Draft Controller — and other products

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Hot Water Heating by Steam

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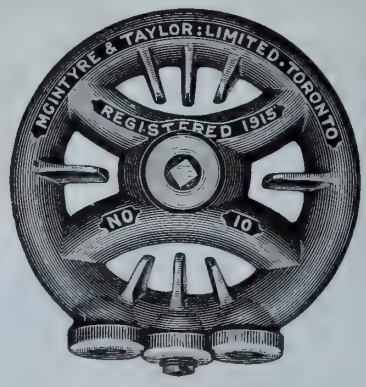
M. & T. Coils

mean that perfect circulation is procured, that liberal waterways eliminate the possibility of chokage, all of which means durability and lots of hot water.



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are made of the best grey iron, free from sand or blowholes. Every coil is properly tapped with perfect standard threads and fully guaranteed.

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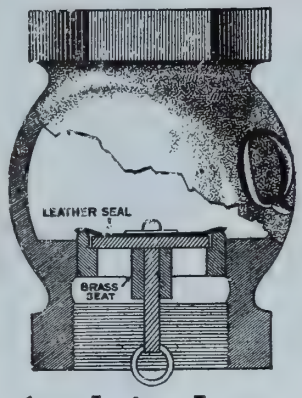

This is a "Q" Foot Valve

And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

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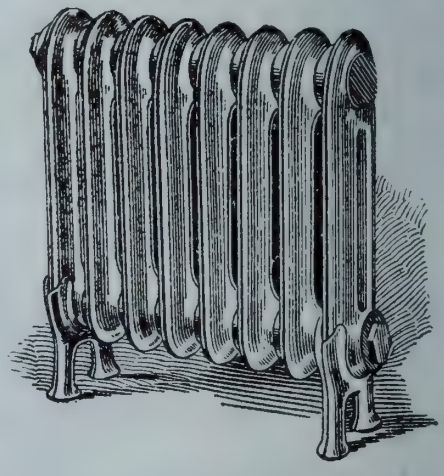
GALT., CANADA

Standard Steam and Hot Water Rads

MAKE AN OFFER ON THEM



Radiators made by American Pressweld Co. of Detroit. Press steel and welded standard steam or water radiators, eight section, 18 inches high, single column, ⅛ inch air vent opening. These are absolutely new and guaranteed perfect. Wholesale price laid down in Canada, $9.50. **Must be cleared at once. Write and make an offer.**

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It is the unexpected that happens. Mistakes are never seen until afterward. They can be avoided only by systematic safeguards—not luck or memory.

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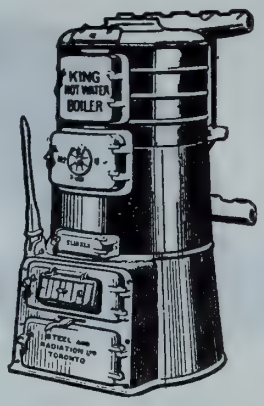
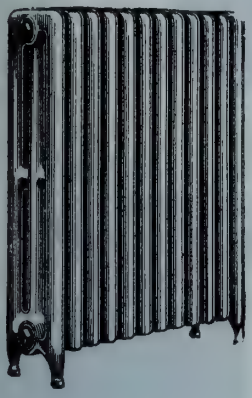
There is no surer road to success than to inspire your locality with confidence. There is no better way to create this "good-will" than to recommend and install King Hot Water Boilers and Imperial Radiators.





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The sterling performance of this combination wins instant and lasting favor wherever it is installed. Maximum heat in every corner in every room with low fuel consumption means satisfied customers. Decide to-day to get the bulk of the business in your locality by recommending these satisfaction-giving boilers and radiators.

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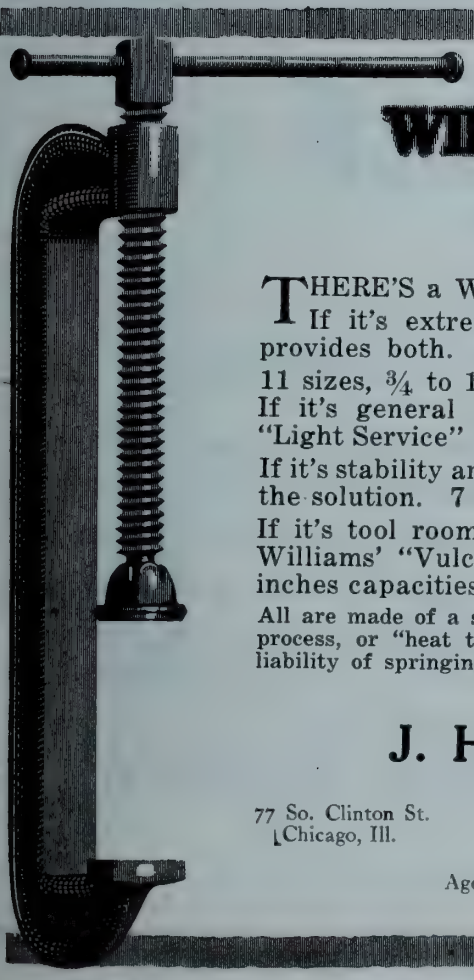

WILLIAMS' SUPERIOR DROP-FORGED CLAMPS

THERE'S a Williams' Clamp for every purpose.

If it's extreme strength and heavy service — Williams' "Vulcan" line provides both.

11 sizes, ¾ to 12½ inches capacities.

If it's general utility—without need for maximum strength — Williams' "Light Service" line will fit the case, 8 sizes, 2 to 12 inches capacities.

If it's stability and utility—medium service—Williams' "Agrippa" line offers the solution. 7 sizes, 4 to 18 inches capacities.

If it's tool room work requiring comparatively small openings of jaws—Williams' "Vulcan" Tool Makers' line should be chosen. 4 sizes, 1 to 4 inches capacities.

All are made of a special, high-grade steel. After forging they are submitted to a refining process, or "heat treatment," which increases their stiffness and strength and reduces the liability of springing.

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CAST IRON
FLANGED FITTINGS
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OSHAWA, CANADA

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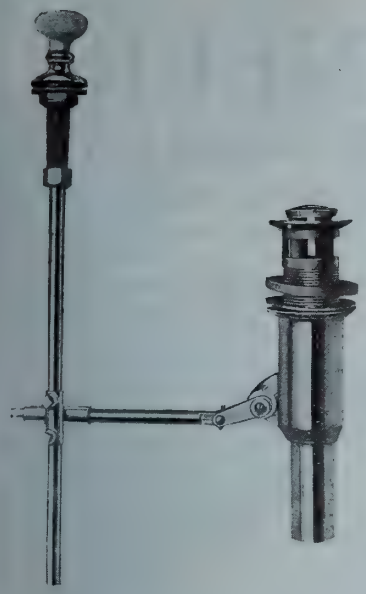
A subscriber to a trade paper naturally expects to find therein the advertisements of houses which cater to such business as the subscriber represents. In fact the trade journal is the one medium, manufacturers cannot afford to omit, because it precedes the salesmen and makes national distribution easier.

—From "Publicity."



ALLINGHAM POP-UP WASTE

DESCRIPTION

Allingham Pop Up Waste (Patented), Nickel-Plated, with China Waste Knob, indirect action (raising knob closes plug, lowering knob opens plug).

MEASUREMENTS

Diameter of flange under waste knob 1¾ inches. Diameter of flange inside hole 2⅛ inches. Diameter of flange below bowl 2⅜ inches. Outside diameter of outlet tube 1¼ inches.

The Allingham Waste is sanitary. The Waste Plug can be removed and cleaned without touching other parts. It is simple and mechanically correct. It is easily adjusted for friction or lift rod. It is reversible and can be easily changed from indirect to direct action if desired.

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MADE IN CANADA

ELECTRIC WELD Range Boilers are the best the Industry affords. Their Service Record of seventeen years and 5,000,000 pieces in use is evidence of their superiority. They are carefully built from the best of raw materials and are guaranteed to give you service.

NO RIVETS—NO LEAKS
The Electric Weld Principle

CANADIAN JOHN WOOD MFG. CO., LIMITED

Grand Trunk Railway—Coxwell to Hollingdon Ave.

TORONTO - ONTARIO

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 — PUBLISHED TWICE MONTHLY

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Proper Form of Contract is Important

This is Especially the Case Just Now When so Much Speculative Building is Going On —Specimen of Contract in Use by the Men in the Trade in Toronto—Be Careful and Avoid Trouble and Losses

Written for Sanitary Engineer by C. E. PARSONS

IF the experience of many of the men in the trade is any guide, sanitary and heating engineers cannot be too careful regarding any contracts they enter into with speculative builders. An enormous amount of speculative building is likely for the spring and so unsatisfactory has been the experience of some firms during the present season that they are laying down a rule that they will have nothing more to do with the speculators.

"We can get plenty of work without touching that offered by speculative builders," said Walter Britton of Bloom and Britton, Hamilton, Ont., in discussing the matter with SANITARY ENGINEER, "and we do not want to figure on any of their jobs. To start with they generally want something cheap. Sooner or later any cheap installations will cause trouble. Usually it is sooner. Suppose we put in the work in a new house of the kind the speculative builder puts up and inside of a year the plumbing and heating gives trouble. What happens? We get the blame not only from the buyer but from the builder and everybody in the neighborhood would hear about it. We do not want that kind of advertisement and so we are keeping away from that class of work."

NEED PROPER CONTRACT

There is another and a very imoprtant aspect to the matter also. That is the question of a proper form of contract between any sanitary engineer who should undertake work for speculative builders and the builders. A number of the men in the trade state that they have burned their fingers because of little technicalities of which they were ignorant.

One of the simplest of these seems to be the details of specifications. One man stated that when he had a job partly under way the owner came to one of the journeymen on the work and said he wanted a certain thing done a different way from what the plans called for. The man would not make the change without an order from the architect and as it turned out later this was an important matter. Had the change been made at the owner's suggestion the builder could have refused to pay for the whole work, because it was not done according to specification.

FORM OF CONTRACT USED IN TORONTO

..... (Contractor)
agree with .....(Owner)
to do the following work .....
according to drawings and specifications of .....
..... (Architects)
providing all materials and labor for said work, for the sum of ..... Dollars

The Owner is to pay the Contractor the said contract price as follows: 80 per cent. on account of said contract and extra work, if any, as the work progresses on value of work done in proportion to the whole amount of contract and the balance to be paid within twenty days of the completion of the work.

If any of the said payments of 80 per cent. are not made within ten days after same become due, the contractor shall not be bound to do anything further under this contract and shall be entitled to payment for all work done at once on the basis of the contract price, and extras for work done and material supplied at date of stopping work.

BE CAREFUL OF THIS

The exact wording of any contract that may be entered into should be very carefully noted. Do not sign contracts that contain any wording that will leave the speculative builder a loophole to refuse payment or to put you to a lot of bother, inconvenience and extra work in removing parts that have been installed. This may very easily happen if the sanitary engineer signs a contract specifying "first-class work," or any similar term.

There is an extremely wide interpretation of what first-class work may mean, especially in the eyes of the judge on the bench. Not a few men in the trade have been caught just on this phrase "first-class work." They signed the contract willingly enough and did what they conscientously believed to an A1 job. But that phrase "first-class work" left the speculative builder a wide open opportunity of which on several occasions he has taken advantage.

Easy Trap to Fall Into

This is a very easy trap for any sanitary engineer to fall into, especially if he has not had any experience with men of the type that some speculative builders have turned out to be. The unfortunate part of it from the standpoint of the man in the trade is, that in the eyes of the law a contract is a contract, and a tremendous lot very often depends upon what at first seems like very simple and harmless wording.

"Don't sign up for any 'first-class work' is my advice," said a Toronto sanitary engineer. "It is all right to do a good job and one that will be satisfactory in every way, but as a result of my experiences all contracts now read: 'To be finished in a neat and workmanlike manner.'" This will amply cover all reasonable requirements of any builder, and at the same time does not leave the plumber open to extravagant claims which might be made by unscrupulous men.

An Important Matter

This question of a proper form of contract is a very important matter. It means the saving to the plumber of a large amount of money. While it is stated that there has seldom been a contract devised that cannot be broken, the one produced above is in general use by the men in Toronto, and is working satisfactorily.

Plan to Allow Six Months in Which to Make Adjustments

OF interest to every business man is the fate of the Moratorium Act, technically known as "The Mortgagors' and Purchasers' Relief Act. The Attorney-General's department of the Ontario Government is now considering what action is wisest and will cause the least disturbance in business circles in dealing with this act. SANITARY ENGINEER interviewed Edward Bayly, Deputy Attorney-General, and Mr. Dymond, Chief Law Clerk, regarding the question, and was informed that no definite decision had yet been arrived at with regard to the action that would be taken. They both assured SANITARY ENGINEER, however, that it was the desire of the Government to take whatever action would least disturb business. "It is the disposition of the Government to disturb business as little as possible," said Mr. Dymond.

Three Suggestions Considered

Three suggestions have been made and are being considered by the members of the Government and officials of the several departments. One is that the moratorium be allowed to lapse automatically. That would simply mean that thirty days after the official closing of the forthcoming session of the Ontario Legislature, the Act would cease to be effective and all transactions affected by the passing of the Act would automatically be closed. There is reason to believe that precaution has not been taken by many affected by the Act to prepare for its annulment; and this is, apparently, weighing considerably with the Government. Officials with whom SANITARY ENGINEER talked did not particularly favor this method.

The second suggestion is that it be continued for another year. But this method either did not meet with much favor, because, as it was pointed out by officials, conditions would practically be the same one year hence as now, and those affected by the Act would again forget all about it. At the last session of the House it was "kicked on" for another year, and there does not seem to be much to be gained by giving it another year's hoist.

Most Favored Plan

The third suggestion, and the one that, at present, meets with the approval of members of the Government is that legislation be passed which will put things as they were before the Act was passed. In other words, if a mortgage fell due six months after the Act was passed, it will now fall due six months after it is allowed to elapse. This would give a period of six months, during which adjustments could be made and those affected by the Act could have a chance to discharge their liabilities. This would mean that it would come to an end seven months after the end of the next session of the House.

Members of the Government have expressed a desire to hear an expression of view from business men as to the wisest course they think should be taken in the interests of all concerned.

Saskatchewan Moratorium is Extended by Legislature Until January 10 of 1921

REGINA, Sask.—A bill giving the Government power to extend moratorium provisions in this Province for another six months, or for one year after the termination of the war, has been given its second reading in the Legislature.

As the Peace Treaty was signed on January 10, protection will be extended until January 10, 1921. A Moratorium Act was passed by the Saskatchewan Legislature at an emergency session in 1914, but the Government did not put into effect an absolute moratorium, as was done in some of the other Provinces and in other countries. The existence of the act, however, enabled the Government to relieve conditions in certain sections of the Province where there was a crop failure by negotiations with mortgage companies.

Steel Sheets Are $10 Above Normal Price

PITTSBURGH, Jan. 29.—Sheet manufacturers are only able to offer latter end of second quarter and third quarter deliveries of sheets at this time. In quoting so far ahead either prices are left open for further consideration later or are fixed at from $10 to $12 a ton above the nominal market. As to the latter, the March 21 price basis, only the leading interest seems to make any attempt to follow that policy, and some members of the trade predict that the March 21 scale on all finished prices will be abandoned as soon as actual booking of business can be proceeded with intelligently and with a fair knowledge of what mill costs will be for the material being sold.

Galvanized sheet demand is very heavy and the prices quoted for base gauge vary from 6.50 cents to 7.50 cents, while blue annealed sheet quotations are not below 4.50 cents for prompt shipment of material.

High Cost of Material Is Causing Concern

WINNIPEG.—According to representations made at the city finance committee meeting, construction of houses under the Federal housing scheme may have to be discontinued in this city, owing to the greatly increased cost of materials and to the new restrictions placed on applicants. The latter preclude the working man from participation, by reason of the heavy cash payments imposed.

Warmly Praised For His Good Work

In a recent issue of the "Literary Digest," appears an article on the progress of the Island of Haiti under the direction of the United States, which quotes from a recent letter written by Marine Corps Commander N. T. McLean, of Chatham, Ont., now acting as sanitary engineer of Haiti, as follows: "Within the past year, it has been my privilege to entertain and show to such an eminent public health official as Major-General W. C. Gorgas (retired), United States Navy, the city of Port Au Prince, as well as to a number of other officials of the Army, the Navy, and to others in civil life who are conversant with public health matter.

The consensus of opinion expressed by these gentlemen to me has been that the streets of Port Au Prince proper were in better condition than those of the majority of American cities, in so far as their cleanliness is concerned."

Dr. N. T. McLean is an old Chatham boy. He has been engaged by the United States Government for the past four years in the sanitation of the Island of Haiti, and it is expected that his work will be completed by spring, when he hopes to come north and pay a visit to his home town.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

BELOW will be found details regarding the important new series, "Sewage Disposal For Small Communities," which is to appear in coming issues of SANITARY ENGINEER.

These articles are to be published in book form and SANITARY ENGINEER has purchased the exclusive rights for their publication.

The matter contained in the series will be of the greatest practical value to the men in the trade as it will discuss problems which are continually being met with and deal with them in simple language. One of the greatest faults with many of the books now available is that the language used is highly technical and very hard to comprehend.

This cannot be said of the coming series. The problems will be thoroughly dealt with and their solution will be told in words that anyone can understand. At considerable cost a large number of special illustrations have been prepared to go with the subject matter and make clear many important features.

The series will be one that is worthy of the most careful perusal and should be kept where the articles may readily be referred to and studied from time to time. A list of the group headings and of the illustrations is as follows:

I. Preliminary and General Description of Sewage.
II. Cesspools and Septic Tank.
III. Construction and Design of Small Septic Tanks for Private Houses and Mansions.
IV. Construction and Designs for Larger Installations, including Sedimentation Tanks, Septic and two-storey Imhoff Tank suitable for all classes of Public Buildings and small Country Towns.
V. General Description of Private House Drainage.
VI. Disposal of Sludge and Design of Small Pumping Installations.
VII. Land Filtration and Artificial Bacteria Beds.

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Manitoba Grain Growers Asking That Board of Commerce be Abolished

Delegates Are Also Against Tariff Commission — Resolution Passed Asking the Union Government to Resign

BRANDON, Man.—Important resolutions, which will affect business interests, are being considered at the annual convention of the Manitoba Grain Growers now in session here, and attended by more than 600 delegates. Premier Norris reiterated the stand he has taken at various meetings throughout the province in reference to the tariff.

Among the resolutions being considered are the following: "Whereas the Union Government holds the reins of power and has lost the confidence of the people, therefore be it resolved that we ask it to resign.

"That the Federal Government renounce its intention of appointing a permanent tariff commission."

Want Lumber Probe

"That the Board of Commerce investigate the prices being charged for lumber."

"That the Dominion Government be urged to expend each year on educational improvement as much as is spent on military and naval preparations."

"Whereas the actions of the Board of Commerce, ever since its appointment, have assumed the form of superficial and fallacious regulations directed against the interests of the farmers and retail distributors in cities and towns, while manufacturers of textiles, flour, meats, boots and shoes and other necessaries of life, whose evidence before the special committee of the House of Commons invited immediate investigation, have been completely ignored;

Disturb Production

"And whereas the net effect of the work of the Board of Commerce to date has been to disturb seriously the vital sources of production, to discourage rather than encourage an increased supply of foodstuffs from Canadian farms, to increase rather than decrease the cost of living, and generally to weaken the economic position of the Dominion as a whole;

"Therefore, be it resolved, that the Manitoba Grain Growers' Association urge upon the Dominion Government the immediate abolition of the Board of Commerce as a menace to the welfare of the Canadian people."

J. C. Brown, who succeeded Mr. Henders as president, in his report spoke of "the people's movement rather than the Farmers' movement." He urged that "Canada at once stop temporizing, discard all methods of war expediency and adopt a national policy based on sound and righteous principles. He attacked the customs tariff, declaring that by it privileged interests may extort blood money from those less privileged.

Winnipeg Strike

Referring to the Winnipeg strike he said:

"The lesson that we have been most emphatically taught, if we have the wisdom to learn it, is that no section of the community can suffer without all suffering together."

The report of the directors quoted a resolution adopted on July 23 accepting the resignation of R. C. Henders, former president of the association. "After careful consideration," it says, "we cannot in any degree accept his attitude on the tariff in the recent Budget and vote, and therefore we repudiate his stand, accept his resignation and reaffirm our adherence to the principles of the Farmers' platform."

Says Railway's Action Would Make Rubber Stamp Out of Board

Chairman of Dominion Railway Commissioners is Outspoken Regarding Refusal of Lines to Obey Order Issued re Publishing of Joint Rates

OTTAWA.—A case which will affect business men all over Canada was heard before the Dominion Railway Commissioners, on Tuesday afternoon, when the Canadian Railways were asked to show cause why they had not obeyed the order issued some time ago re the publishing of joint rates.

The railways came back rather unexpectedly, by basing practically their whole defence around the point that the Railway Board had no authority to issue any such order.

A peculiar situation arises in this connection, in that the Railway Board has the right to interpret the Act governing the case. If this interpretation is not acceptable to the railways, an appeal can be made to the Supreme Court. This may be done if the Board interprets the act and gives a decision against the railways.

This Point Offset

The railways attempted to make another point by declaring that only one complaint had been made in connection with their failure to publish joint rates as ordered. This, however, was offset by complaints which were in the hands of the Commissioners in addition to that mentioned by the railways, and also by the statement that the Canadian Manufacturers' Association has a number of complaints from business men who are interested in the matter.

Chairman Carvell of the Board was rather outspoken in regard to what he thought of the railways' action in ignoring the Board's orders.

"It would mean making the Railway Board merely a rubber stamp," he declared. "Just because some persons do not like the order we issued is no reason at all why it should be disobeyed."

Made Investigation

He also commented on the fact that the Commissioners, before issuing the order, made a very complete investigation into the matter, and did not arrive at their decision hastily.

The question is one which interests all merchants and manufacturers who have to ship goods to points necessitating their carriage over two lines of railways.

How To Make Belt Connections

When Installing Fans or Pumps the Information Given Here Will Prove Most Useful—Third of the Series Specially Written for "Sanitary Engineer"—Keep These Articles Where You Can Refer to Them Easily

WHEN a heating engineer has occasion to make an installation of fans or pumps, he requires some knowledge of the advantages and disadvantages of belt connections.

The material preferred by engineers for belts is that made from back strips of all oak-tanned leather, and cured with tallow and fish oil. Some engineers prefer the fabric belts manufactured by several of the rubber companies. Belts of rawhide are sometimes used because of their strength and proof against hardening of fibre.

The type of belt to be used is frequently controlled by the circumstances of speed and of the arc of contact. When high speeds are required, or when the arc of contact is limited, some form of link-belt should be used.

Sagging of Belts

A leather belt should be so installed that the upper—or slack—side of the belt sags enough to effect a good arc of contact with the pulleys.

The driving force of a belt lies in the difference of tension between the slack and tight side of the belt; therefore, the greater the sag, the more effective the driving power of the belt. Of course, the belt should not be slack enough to permit slipping.

The driving side of the belt should be underneath.

If the belt is too tight it will exert considerable strain on the pulleys and bearings.

Which Side of the Belt?

Engineers are by no means of one mind regarding which side of the belt should be in contact with the pulley. However, the majority of engineers claim that the grain side should be used, as its smoothness makes it cling tightly to the pulleys. It is also less subject to wear than is the rougher side.

Strength of Belts

The weakest part of a belt is in the jointing. A belt may have a body strength of from 1,800 to 5,500 lbs. per sq. inch. A laced connection has a strength of from 800 to 1,800 lbs. per sq. inch. A riveted joint has a strength of from 1,000 to 2,700 lbs. The safe working load on a belt should not exceed one-third of the strength of the joint.

Jointing of Belts

When it is not possible to use an endless belt, the necessary jointing of ends should be made with leather lacings, because of their great flexibility when compared with metal fasteners.

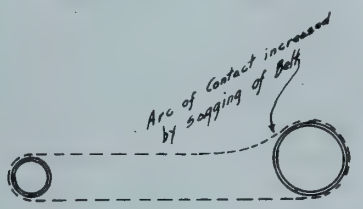
Before lacing, the belt should have its ends carefully trimmed, so that they will come properly together.

The holes should be made something smaller than the lacing, so that the lacing may hold on itself in the holes. The holes must not be too large, nor too close to the ends of the belt.

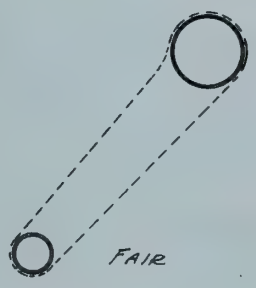
The holes that are in one belt end should be directly opposite the corresponding holes in the other belt end.

Time spent in squaring the ends of the belts, and in marking off exact spacing for the lacing holes will not be wasted. The time will be saved later, when the belt is being laced; and in addition a strong, as well as a neat, job will be the result of the first care.

We show here two methods of lacing, either of which we recommend.



Good



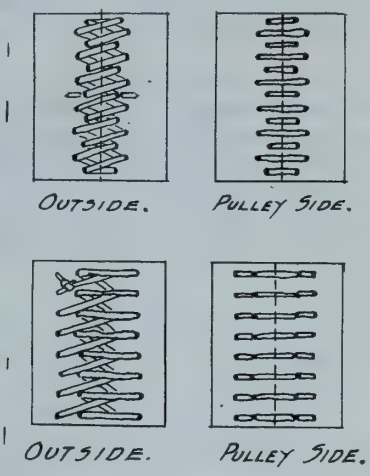
Fair

Poor.

Distance Between Pulleys

Now we come to something that should be of interest to the engineer, who is often forced to instal motors and fans so close together that the effective driving power of the belt is much reduced.

The ratios of driving to driven pulleys



control the distances that these pulleys should be apart.

When the pulleys are in the ratio 2:1, they should be placed eight feet apart. From this on, every ratio should be multiplied by 3 feet, thus:—Ratio of 4:1 = 4 × 3 feet = 12 feet; ratio of 5:1 = 5 × 3 feet = 15 feet.

The reader will understand from this that when the driven pulley is 5 times as large as the driving pulley, that there should be 15 feet allowed between centres of pulleys.

Speed of Belts

The efficiency of a leather belt increases as the speed runs up to 3,900 feet a minute; above that speed, the efficiency diminishes.

The speed of the belt per minute may be found by multiplying the circumference of the pulley, in feet, by the number of revolutions per minute.

The revolutions of the pulleys are in proportion inverse to their diameters, thus:

$$r:R::P:p$$

In this formula r represents the revolutions of p, R represents the revolutions of P.

Best Arrangement

The best way to instal belts is horizontally. When pulleys are connected with vertical belts there can be no increase in the arc of contact effected by a slack side on the belt.

Oblique connections are better than those that are vertical, but not so good as if horizontal.

Boiling Temperatures

The rate of conversion of water to vapor as effected by the application of heat is proportional to the pressure to which the water is subjected. The greater the pressure, the more heat required to effect vaporization.

The heat that is taken up by the process of vaporization is released when the vapor changes back to water.

In an open vessel, at sea level, it will take 966 B.t.u. to convert one pound of water, at a temperature of 212 deg. Fahr., to steam of the same temperature.

The boiling temperature of a liquid is that temperature of the liquid where it gives off bubbles of its own vapor.

In a former article we pointed to the atmospheric weight on the earth's surface; now we wish to draw the attention of the reader to how that weight affects the boiling temperature of liquids.

Bubbles of vapor will only form in the liquid when the force of vapor counter-balances the atmospheric pressure on the liquid. If a quantity of heat be applied to the liquid so that the energy of the heat be great enough to offset the weight resting on the liquid, the liquid will be completely boiled out of the vessel.

To increase the boiling temperature of the liquid more weight should be applied to its surface; to decrease the boiling temperature, the weight should be removed.

Temperature of Vapor

The temperature of the vapor is the same as the liquid with which it is in contact, e.g., steam coming from water at 190 deg. Fahr., will have a temperature of 190 deg. Fahr.

If 1 pound of water, at a temperature of 212 deg. Fahr., be placed in a closed vessel and heated to a higher temperature, the water will not boil, i.e., no vaporization will take place. The pressure may increase sufficient to burst the vessel, but no steam will be generated until the weight is removed from the water, or, in other words, until the expansive force of the vapor bubbles is no longer confined. This is not always understood; and frequently the error is made of assuming that because water is at a temperature of 233 deg. the liquid contains heat equivalent to a steam heat of 7 lbs. above gauge pressure. A pound of water at 233 deg. Fahr. contains about 201 B.t.u. A pound of water converted to steam at this temperature contains 1,154 B.t.u.

Less Heat Required

It takes less heat to raise the temperature of a liquid to a boiling point under vacuum than under pressure, but it takes more heat to entirely vaporize the liquid boiling under vacuum than it does under pressure.

The total heat required is, of course, greater when the steam is generated under pressure than when it is generated under vacuum. At one pound above vacuum water boils at about 102 deg. Fahr., but it takes 1,043 B.t.u. to vaporize one pound of water under this condition. The temperature of the water and of the vapor will be 102 deg. Fahr., and the total heat above 32 deg. Fahr. will be 1,113 B.t.u.

Water under a gauge pressure of about 14⅛ lbs. has a temperature of 219 deg. Fahr. It takes 939 B.t.u. to vaporize one pound of water at that temperature. The total heat above 32 deg. Fahr. will be 1,158 B.t.u.

Now we see that while a greater number of heat units is contained in "vacuum vapor" than in "pressure steam," the total heat of the "pressure steam" is the greater of the two.

Volume Increases

As the pressure of steam increases its volume decreases.

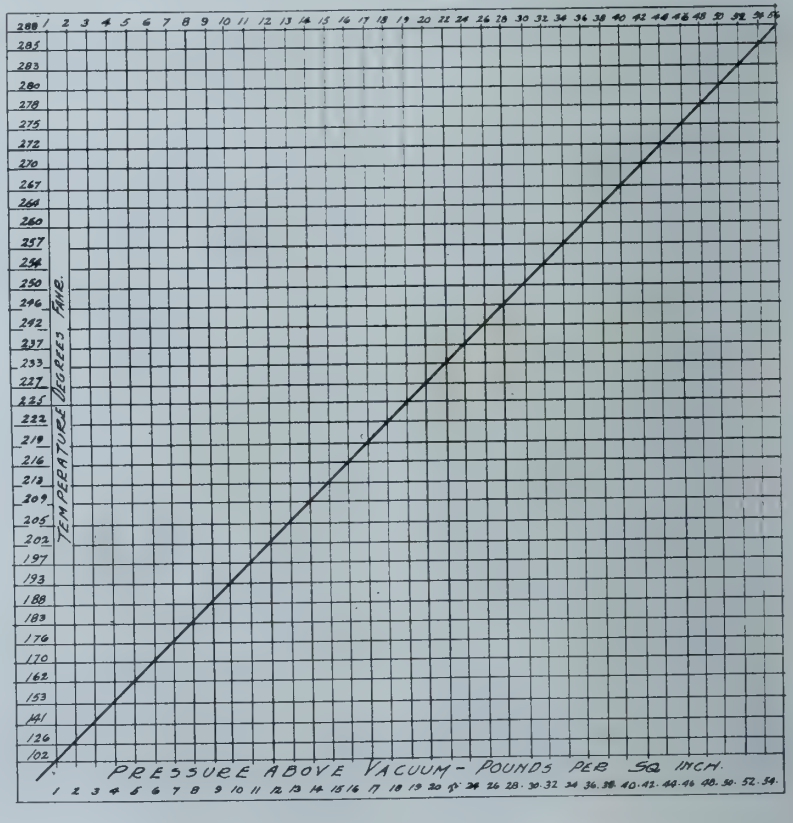
One pound of water converted to steam at 1 lb. above vacuum will fill a volume of 330 cubic ft.

One pound of water converted into steam at 14½ pounds gauge pressure will fill a volume of 13½ cubic ft.

Boiling Under Vacuum

A radiator may be filled with steam at a pressure of ½ pounds, gauge pressure, i.e., 213 deg. Fahr. Now, if that radiator be tightly closed, so that neither steam nor air may enter it, the radiator may cool down to the temperature of the room before the confined steam will be entirely condensed. After the radiator has been allowed to stand for some time, or until it is almost as cold as the surrounding atmosphere, an interesting experiment may be made in this way: Take a sounding tube, such as a physician's stethoscope, and listen to the surging of the vapor bubbles when the radiator is suddenly drenched with cold water. The reason that the liquid continues to give off vapor at the low temperature is because there is no weight of atmosphere, within the rod, to counter the buoyant force of the vapor bubbles.

We show a graphic chart of the relation between boiling temperature and weights in pounds above vacuum.



PLANNING INCREASE

Natural gas consumers, through faulty appliances, obtain only 13 per cent. efficiency from a gas cook stove, 25 per cent. from a house heating furnace and 10 per cent. from a hot-water heater, according to figures which come from the U. S. Department of the Interior. It is believed that in good practice this efficiency can be trebled. Secretary Lane has called a conference of governors, public utility commissioners, state geologists, home economic experts, owners of natural gas companies and appliance manufacturers, which will meet on Jan. 15 to discuss means of giving the consumers greater value for what gas they can get. It is unfortunate that this was not discovered and remedies found a number of years ago. With the natural gas fields apparently nearly exhausted the knowledge now will not be of great cheer to the consumer.

R. E. Callahan, Ltd., capital $350,000, head office Toronto, plans to manufacture household electrical appliances and wooden metal toys.

An Allegation That Is Unjustified

IT has been brought to the attention of SANITARY ENGINEER in connection with the recent exclusive publication in this journal of the proposed new Plumbing Regulations for the Province of Ontario, that a few men in the trade stated that this was deliberately done under pressure from manufacturers, in the hope that the passage of the regulations would be prevented.

Any statement of this kind is absolutely without foundation. Not a manufacturer in the Dominion knew that the information published was in the hands of the Editor of SANITARY ENGINEER. No one but the Editor of the paper knew what was coming, and in securing this information for its readers and publishing it before any other journals, SANITARY ENGINEER not only scored what is known in the journalistic world as a "scoop," but one of the most important in the history of the trade in the whole Dominion.

The proposed new plumbing by-laws have been read by the men in the trade from coast to coast with the keenest interest, and it is likely that they will be used as a basis for the establishment of similar regulations in other provinces. Undoubtedly this will work for good, and be one of the greatest steps forward that has ever been taken.

While there has been opposition in the past to the proposals there is little doubt that the proposed Ontario regulations will shortly become law. As far as the manufacturers are concerned, not one has in any way, at any time, made any endeavor to influence SANITARY ENGINEER in regard to the matter.

SANITARY ENGINEER is glad that it was able to give this important piece of news to its readers so far in advance of every other paper in Canada. It will be the aim of this journal to give the men in the trade all the real news all the time.

The Good Work Has Already Begun

New Plumbing By-laws at Dundas, Ont., Will be Based on the Proposed New Regulations for the Province of Ontario—Passed by Committee and Sent to Council

DUNDAS, Ont.—Members of the sewers committee at their regular meeting went thoroughly into the newly drafted by-law concerning house connections. It was approved of and will be presented at the February meeting of the council for first, second and third readings.

The work of preparing a by-law dealing with plumbing, etc., is to be commenced soon by Engineer Murdock.

Both of these by-laws will conform to the new regulations covering sewers and plumbing throughout Ontario, which are regarded as being far in advance of any regulations heretofore compiled. The proposed by-laws are based on practical and not theoretical ideas, and means the complete standardizing of methods throughout Ontario, especially in the matter of plumbing. All that is required to make the new proposals law is the signature of the Lieutenant-Governor of the province.

As a good part of the regulations concerns city waterworks plants and sewage systems, a great deal of the mandatory clauses will not be applicable to towns such as Dundas. These parts of the regulations are being eliminated by the sewer engineer.

When completed, it will be a most comprehensive piece of legislation, all angles of the subject being carefully covered from the construction of cellars, regulating the manner of drainage and the kinds of materials to be used. Even weights of lead pipe, etc., have been standardized. Even a farmer who wishes to instal plumbing must put it in with the same thought and care as is bestowed on the work in the residences of well-governed cities.

Responsibility for conformance with the regulations will rest with the plumber, who will have to stand the risk of work not done in accordance.

Sanitary Plumbing Co., Ltd., capital $50,000, head office Ottawa, Ont., plans to manufacture and deal in plumbers' supplies.

Asking $100,000 For Alleged Infringement of Patents and Trade Lost

Many Technical Points Involved in Action Between Manufacturers of Electrical Washing Machines—Canadian Dealers Interested in Outcome of Suit.

Two patent infringement suits, involving the recovery of $100,000 for trade lost, the securing of federal injunctions against further violations and the procuring of royalties alleged to be due for the sale of many machines bearing the infringement of the patents in question have been brought by the 1900 Washer Company, of Binghamton, N. Y. One suit has been filed in St. Louis against the Blue Bird Appliance Company, and the Blue Bird Manufacturing Company, the first the selling company, and the second the manufacturing company, and another against the jobbing company, the Elliott-Lewis Electrical Company, of Philadelphia.

Technical Points

The case, it is stated, is filled with technicalties but centres around certain patents in reference to design of the tank.

The Blue Bird Company made munitions during the war and with the coming of peace commenced the manufacture of washing machines.

The Canadian headquarters of the 1900 Washer Co. is in Toronto. The Blue Bird Company, it is stated, had been considering Brantford as a location for its Canadian branch.

They Sell Because They Make Good

Labor-Saving Devices Offer Magnificent Opportunities for More Sales — Very Often They Bring Other Sales Because Satisfied Customers Never Tire Talking About Them

WHEN one considers that during the past twelve months washing machines valued at twenty-five million dollars, more than half a million vacuum cleaners, and more than a million electric irons have been sold in Canada and the United States, some idea may be gained of the demand for modern labor-saving equipment.

Modernization of the home, which is really the basic idea behind all this demand, is as yet merely in its infancy. The time is coming, and is coming very, very rapidly when every home will have its washing machine, just as every home to-day has its sewing machine.

Merchants Can Help

The sanitary engineer who realizes that every clothesline he sees in his territory offers a prospect for the sale of a washer; that every time he sees a carpet being beaten he has an opportunity to sell a cleaner, and that opportunities exist on all sides for selling labor-saving devices and equipment that will make the home better, more comfortable or more easily looked after, is going to get the business.

The business is there and the way to get it is to show the people in your territory just what you have and what it will do. No woman who can get a machine to do her washing will ever go back to the old way. It is because women are realizing this more and more every day that washing machine manufacturers are unable to keep up with orders. And the women are realizing it because the manufacturers and the distributors are advertising their products, putting on demonstrations and keeping their goods before the public as never before.

Will Grow Steadily

This is the way to get results. Labor-saving equipment will go a long way toward selling itself if it is given any sort of a chance, but the merchant who gets in a washing machine, or a cleaner, or any other goods, and hides it away at the back of the store and waits for somebody to come in and ask if he handles washers is not going to sell anything like the quantity of them that the man will who pushes them aggressively and keeps pushing them all the time.

The gospel of labor-saving equipment, better utensils, sanitary equipment, is one that will appeal to practically one hundred per cent. of the women of Canada. Every woman is interested in knowing how she can keep her home better. If you can show her how she can do more work and do it easier and at a reasonable cost you have got a real prospect that will take only ordinary salesmanship to convert into a customer.

A Continual Advertisement

There is another feature that has interest of an exceptional nature for the merchant, and that is that a very large percentage of the buyers of labor-saving equipment become so well "sold" on their purchase that they never tire of telling their friends about the prize they have obtained. Merchants all over the country are finding that every piece of equipment they sell means sooner or later additional customers secured directly as a result of the advertising they have received in this way.

Not only this, but a customer who has purchased, say a washer, is often so well satisfied that a cleaner, and then some other device, and othen another one, is bought in order that labor may be lightened.

In thus helping people who are often at their wits' end to secure help, to do more work and do it better and easier than they have ever done it before, the merchant is rendering a real service. At the same time he is securing for himself and his store the most valuable kind of advertising at no cost whatever.

There is no doubt whatever that this is a mechanical age and that each year is seeing more and more of the drudgery, especially in the housework, transferred to machinery. This is a tendency that is bound to increase and is gathering momentum all the time. It offers endless opportunities for sales to the merchant.

In the past thirty months displays of washing machines have come to have a new interest to women all over the Dominion owing to the difficulty in securing dependable help. This situation is offering splendid opportunities for more and more sales.

Trowern's Answer to Beckett Charges

Former Says Retailers Across Canada Are Up in Arms Against Rulings of Board of Commerce—Claim Wholesalers Have Benefited From Regulations—Wholesale Trade Going Out of Its Way

H. C. BECKETT, of W. H. Gillard & Co., wholesale grocers, Hamilton, Ont., has sent a letter to Hon. Sir Geo. E. Foster and other members of the Cabinet condemning the action of those who are criticizing the rulings of the Board of Commerce and who are urging a change in the personnel of it.

In this letter he says:

"The recent agitation and action of Mr. Trowern and others at Ottawa has not escaped the attention of the great majority of business men and consumers throughout Canada. Hundreds of thoughtful business men and consumers are amazed at such action. Hundreds of business men at subsequent largely-attended meetings have expressed surprise, amazement and strong disapproval of such unwarranted action in trying to stir up a feeling of antagonism against the Government, the Board of Commerce, and some of its members.

"We have yet to learn of a justified complaint from any consumers for the reason that the consumer is pretty well satisfied with the efforts of the Board of Commerce. The consumer needs much enlightenment because, as a rule, he is a superficial thinker and does not concern himself by going very deeply into trade matters, which, as every man (consumer included) should know, are very complicated and can only be understood by years of study, practical experience, and contact with trade conditions. I have no hesitation in making the statement that I am qualified to speak, not only with very considerable first-hand knowledge (having devoted many years to the study of trade ethics) but that I represent the views of thousands of thoughtful consumers and business men in Canada.

"The opinion is that the Board of Commerce, as constituted, will prove to be a blessing to Canada.

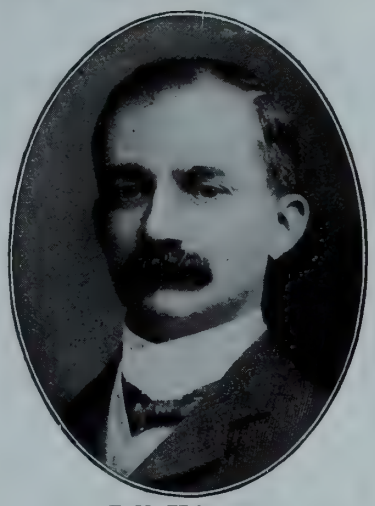
"It is the most outstanding statesmanlike move since Confederation, and now some few vindictive people start out to create trouble before even giving the Board an opportunity to get a line on trade conditions.

"As a matter of fact the Board of Commerce was never intended to deal with the high cost of living except that it would incidentally do so and prevent profiteering at the expense of the consumer, and be the means, through its report, of educating the consumer that supply and demand largely regulate prices.

"Instead of the Board of Commerce being given an opportunity to get thoroughly informed, there was such a rush, demand and clamor for a reduction in prices (and rightly so, since the people did not seem to understand the reason for high prices) that the Board tried to do something in the shortest time possible—to be of some quick benefit to the consumer. The Board discovered some instances of excessive profits—which may yet need investigation to protect the consumer in the future, but on the whole they found in the great majority of complaints investigated that there was very little profiteering, and they said so openly. The consumer was suspicious, and is yet in some cases, so the idea was to allay the unrest by speedy action.

"The Board has been and will be fair to the man in business, and, so far, no man in business has been hurt as much as is the consumer of limited income by reason of high prices.

"Why, then, this opposition? It comes from a section who think they may be curbed in unfair practices so prevalent in Canada to-day. The opposition is secretly fanned by the monopolistic interests. The Board has already proved it will not be swayed by any particular class in Canada, and in this respect the Board is entitled to the highest praise that man can have. They are honest—and they have ability. They are endowed with the qualifications so necessary in occupying such important positions. It shows the wisdom of the present Government, who appointed them, and also the Government's honesty of purpose to make real and lasting progress for the betterment of Canada.



E. M. TROWERN
Dominion Secretary of the R. M. A., who replies to H. C. Beckett's letter.

"Already the big interests, under a cloak, are arranging their forces and spreading their propaganda to, if possible, block the Federal Government in this, the wisest legislation since Confederation. They are fighting to change the personnel of the Board so that some putty men will hold the seat of judgment. It is believed, however, that the Board of Commerce Act provides that trade experts may be called to assist the Board. Such experts could be of great assistance to the Board, and could be selected or appointed by Provincial Governments and thus protect provincial interests, provided, of course, the men appointed were big enough and unselfish enough to be independent."

MR. TROWERN'S VIEWS

SANITARY ENGINEER asked E. M. Trowern for his views in connection with Mr. Beckett's letter and the attitude of the Retail Merchants' Association toward this Board.

Mr. Trowern maintained that the facts regarding the manner in which the Board of Commerce has treated the retail trade are too apparent to require any defence by him. "The retail trade," he said, "from one end of Canada to the other, are up in arms as to the various orders that have been made by the Board of Commerce and applied to them. No such absurd orders have been made regarding the wholesale trade, and whatever orders have been made have been made for their benefit, so that there is no wonder that the wholesale trade wish to retain the present board, and are now rushing to their defence.

"The retail trade everywhere recognize that the wholesale trade are acting with selfish motives, and no amount of argument will convince them differently. At the special meeting of the Dominion Board, which was held in Ottawa on January 13 and 14, members came from every province in the Dominion, and they would not have come that distance if there was no justification for it, and the retail trade feel that the wholesale trade are going out of their way in an endeavor to tell the retail trade what they should do.

"Our organization was formed for the purpose of protecting the retail merchant, and we feel that we understand our conditions better than any other class in the community, and consequently we resent any dictation."

In an address by Mr. Trowern before the Dominion Board of the Retail Merchants' Association at Ottawa recently, he pointed out that the merchants did not want the Act under which the Board of Commerce operated abolished, but they thought the manner in which it is being operated should be changed. Space does not permit the running of this address this week, but it will appear next.

Dr. R. J. McFall, former Cost of Living Commissioner, and more recently Chief of the Inland Trade Division of the Department of Trade and Commerce, who has just resigned from the public service, has accepted a post with the Massachusetts Agricultural College, which is located at Amherst, Mass

Send a catalog to your prospects

"For the Home" and "For the Factory" Catalogs are supplied to the plumbing trade for the asking.

A Hamilton Heating and Sanitary Engineer says:—

"We use the Port Hope Sanitary Catalogs They are easy to carry in the pocket and very convenient to sell from"

THE writer of this advertisement, when he found a very well-worn "For the Factory" catalog on the desk of one of the leading heating and sanitary engineers of Hamilton, asked the manager if he ever used the Port Hope Sanitary Catalogs in his selling, to which he replied that he did and found them very satisfactory and convenient to carry around with him.

Upon further enquiry the writer found that he not only sold from the "For the Home' and "For the Factory" Catalogs, but he sent copies out to prospects. In this way be gained much splendid business.

These people have good ideas and are right on the job.

Every plumber in Canada should carry copies of these two catalogs and should use them in his selling. They often take the place of an overload of stock.

Port Hope Sanitary Mfg. Company, Limited

Factory:
PORT HOPE, ONTARIO
TORONTO SHOW ROOMS
119 King St. East

WINNIPEG OFFICE
405 Tribune Bldg.
HALIFAX OFFICE: McCurdy Building, Hollis Street

Head Office:
ROYAL BANK BUILDING, TORONTO
MONTREAL SHOWROOMS
234 Beaver Hall Hill

EDITORIAL COMMENT

DO YOU DO THIS?

"WE have what we advertise and we advertise what we have," is the slogan which an Eastern Ontario hardware firm has adopted to close its regular message to the people and it seems on general principles rather a good one. It is a policy which if carried out in a broad sense by every merchant in Canada would be productive of tremendous results. Just imagine the stimulus that business would receive if every merchant in the country adopted a progressive policy of this kind and advertised the merchandise he had for sale and then backed it up by having the stock of good goods. One of the best ways to sell more merchandise is to put it in stock and then let the people know that you have it. To get the best results this must be done consistently. That is, it is no use to put in a good stock and insert one advertisement in the local paper and expect the whole stock to move out. Advertising does not work on the plan of one big explosion as it were, but rather with the force of a steady pull. A daily or weekly message, as the case may be, will keep stock turning steadily if the copy is intelligently directed and seasonable lines are offered.

LUMBER PRICES SOARING

IN spite of the fact that lumber prices have soared to the highest figures on record further advances are anticipated almost immediately. The members of the Western Lumber Association will hold their annual meeting in Winnipeg next week and, it is stated, that among the first business to be considered will be price revision. Enormous orders for lumber are already booked, many of them for shipment overseas. The lumber men claim that it is impossible to secure sufficient help to handle anything like the business that is offering. One of the largest hardware firms in Ontario showed SANITARY ENGINEER a letter this week from a firm in which it was stated that production costs had increased 189 per cent., while efficiency was sixty per cent. of what it used to be. The hardware merchant referred to above stated that ordinary lath, made out of cull pine, which formerly sold for $2.75 per thousand, are now selling at $19 and are hard to obtain at that. This, he said, is merely a sample of a condition that is general. Hardwood flooring prices, he declared, are even higher proportionately.

THE HOUSING GRANTS

A GOOD deal of interest is being taken by the men in the hardware and building trades in the attitude of the new Ontario Government regarding the housing scheme. Since it took over the reins of power, the Drury Government has not advanced any funds in connection with the housing scheme and before any further grants are made it is understood that the work as far as it has been carried out will come up for discussion. There are rumors also that some of the members may have questions to ask that will have an important bearing on what policy is to be pursued during the coming year. Ontario still has about $5,000,000 of its share of the Government allotment and the money set aside last year by the former Government. Up to date about 1,400 houses have been erected under the plan. Many of the municipalities which have been laying plans to relieve housing shortages during the coming summer are wondering just where they stand. The whole question will, it is understood, be settled in the next few weeks.

NOT A TIME FOR DOUBT

RETAIL merchants all over the country during the past fifteen months, ever since the signing of the armistice, have had a rather striking illustation of the fact that the man who has the stock and is prepared for business will get all he can handle. Just a year ago now "watchful waiting" was popular. In spite of their own better judgment, in spite of the views of some of the soundest business men in the country, not a few merchants were led away by the popular view on the street, backed by unwarranted statements in the daily press, that prices were due for a drop. As far as business was concerned the whole country developed into a huge guessing contest. On one side were the men who guessed that they would not buy because prices were coming down. On the other side were the men who took the view that a safe plan was to have the stock and look after their customers' demands. It has turned out that the men in the last class took the correct view. Prices have not declined and the men who did not buy have lost a good deal of money and trade by not having stock on hand. The same problem must be faced again in the coming months. There are still merchants who are looking for a drop in prices in spite of the fact that the stocks

of goods the world over are bare. Until the tremendous world shortage that now exists is supplied and there is a surplus of merchandise, there is little chance of any material reduction in prices. One of the big troubles is going to be to get the goods and it is obvious that the man who has no merchandise on order is not going to have anything to offer.

GET BEHIND THIS MOVE

THE announcement of Hon. Walter Biggs, the new Minister of Highways for Ontario, that the Government plans an expenditure of $60,000,000 during the next five years, is of keen interest to every merchant. Of special interest is the plan to be followed, that is the development of better roads all through the rural districts, rather than the expenditure of a large sum on one trans-provincial highway. Any movement towards securing more and better highways is one which deserves the heartiest support of merchants. Good roads are a most important asset in any community and particularly so to the business men. With the steadily increasing use of automobiles, especially among the farmers, better highways will mean better business wherever they are constructed. Farmers can not only come in to town oftener but they can bring in larger loads of produce and take home larger loads of merchandise. And the experience is that wherever good roads have been built, the farmers do these things.

WHAT IF THIS WERE YOU?

FIRE swept a Canadian town not long ago. Two dealers in the same line suffered heavily. Both lost their stock. Both were determined to get back into business again just as quickly as possible. But there was one thing that blocked their progress—settlement with the insurance adjusters.

One merchant had kept complete records of everything he had. The other was never able to tell just exactly where he stood, even at the end of the year when a general inventory should have been taken.

In less than a day the adjusters effected a settlement with the merchant who knew about his stock. It was a satisfactory settlement too. The other man labored for three weeks before he was able to reach an agreement. Even then he did not get nearly as much as he believed was coming to him.

Because of a little system, just plain, ordinary business system, the first merchant was able to be back into business again three whole weeks before his competitor. Besides this he was satisfied that he had got all that was coming to him in the way of settlement of claims.

The lesson was rather a bitter one for the second man, but he was wise enough to see that it pays to know just where you stand, and he is keeping records now just as carefully as the other man.

COMING TO CANADA

FIGURES just published at Ottawa show that during the period from April to November of last year there was an increase of 166 per cent. in the number of immigrants coming to Canada, as compared with the returns for the same period in the previous year. Of the new arrivals there were 47,585 British immigrants, 38,721 Americans, and 5,114 from other countries, a total of 91,420. A very large percentage of these people are going on farms in different parts of the country. The big percentage of the Americans were practical farmers who have sold their land in the Western States and are coming over to settle with their families in the Canadian West. To those not in close touch with the situation the movement that is going on in the West from an immigration standpoint is surprising and it is predicted that this year's figures will be much larger than those for 1919. All this means more business for the hardware and other merchants and more consumers for merchandise. It explains to some extent also the unusual number of new branch banks that have been opened in the West in the last little while.

METHOD IN THEIR MADNESS

NOT a few business men have commented during the past few months upon the apparent inaction of the British Government in regard to the steady drop in the value of the pound sterling. It is now being realized that there was a good deal of method behind the British plans, especially in view of the keen race for commercial supremacy in the markets of the world following the reconstruction period. No less an authority than the *Wall Street Journal* has the following very interesting comment to make upon the present situation and the future outlook:

"The United States is the only country that is not alive to the international situation. England is getting away with the world's business. The fall in sterling gives her a 25 per cent. protection against imports and a 25 per cent. stimulus to exports, but back of her is a country with still lower exchanges, and England, as mistress of the seas, is gathering up the cheap goods that Europe is starting to pour forth, and is passing them over the world at handsome profits. She buys low in Europe, and will soon be selling at high prices in the States.

"In three years England will be the commanding commercial and trading power of the world, and as she stood as the bulwark of democracy and freedom we shall not regret it. I rather think she is entitled to all she can get. She has been on the seas and in international trade for a long time, and she knows markets over the earth as does no other nation."

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

Business Changes

Brampton, Ont.— Higgins & Large, hardware and plumbing, have sold their hardware business to Robert Lewis.

Vegreville, Alberta.—Harry Trauin has disposed of his plumbing and tinsmithing business.

Elmira, Ont.—Fred Rudow has purchased the plumbing business of Frank Rudow & Son.

New Firms

Long and Maynard, plumbers, have been registered at Montreal.

The Elite Plumbing & Heating Co., 201 Jones Avenue, has been registered at Toronto.

J. W. Hodson & Son, plumbing and heating contractors, have opened for business at 504 Builders' Exchange Building, Winnipeg. They would be glad to have catalogues and prices from the trade.

Personal

Henry Clarke has been appointed sanitary inspector for Elora by the town council.

George Gibbs, of Sprucedale, has been appointed sanitary inspector for the Township of McMurrich by the town council.

Thomas H. Ferguson, of Toronto, who was recently ill with pleurisy, is in the hospital undergoing an operation which, it is hoped, will relieve a serious inflammation which developed in one of his eyes.

Alderman Frank R. Maxwell, of Toronto, president of the Dominion Association of Domestic and Sanitary Engineers, has been appointed a member of the Toronto Board of Health.

At the annual meeting of the Rotary Club of St. John, New Brunswick, Edward J. Terry, local manager for the James Robertson Co., Ltd., was honored by being elected president. Mr. Terry has been an active Rotarian for some time.

Trade Notes

LeFaivre & Gagnon have been appointed liquidators for Lapointe & Cote, Limited, Quebec, plumbers.

James Saunderson & Co., plumbers, Montreal, have dissolved.

Bonneville & Co., plumbers, have been registered at Montreal.

W. J. McQuade, of Ottawa, has assigned to W. A. Cole, and a meeting of the creditors has been called for February 3.

Plumbers' Helpers Form Local Union

Hamilton, Ont.—Another union was added to the long list of craft organizations in this city when the Plumbers' and Steam Fitters' Helpers' local was formed, under the direction of A. Bonner, business agent of the Plumbers' Union, and H. G. Fester, secretary of the Trades and Labor Council. There was a good turnout of helpers, and it was decided to apply for a charter from the A. F. of L., and operate under the jurisdiction of the Plumbers' International.

Hamilton Society Elects New Officers

Hamilton, Ont.—At the regular meeting of the Hamilton Society of Domestic Sanitary and Heating Engineers, officers for the year were elected as follows: President, J. McBeth; vice-president, E. Fletcher; secretary-treasurer, C. G. Stewart.

Journeymen Asking For a Dollar an Hour

Brantford, Ont.—Local journeymen plumbers have made a demand for $1 per hour when their agreement with the masters expires May 1. They are at present receiving 70 cents.

C. D. Henderson Leaves Cowans at Brantford

C. D. Henderson, who has been in partnership at Brantford, Ont., with T. A. Cowan in the firm of "Cowans," has severed his connection with the business and joins the staff of the Bluebird Washing Machine Co., which is locating its Canadian branch factory at Brantford. Mr. Henderson was widely known in the plumbing trade, not only through "Cowans," but also through the Henderson service, which he maintained for the men in the trade.

Plan Inspection of Sschool Ventilation

Brantford.—A thorough inspection of the public schools of the city with regard to ventilation will be carried out by Dr. W. L. Hutton following action by Mr. P. P. Ballachey, chairman of the Medical Committee of the Board of Education.

Master Plumbers Were Entertained

On Monday evening, January 19, in the I.O.O.F. Temple Hall, the members of the Hamilton Society of Domestic Sanitary and Heating Engineers entertained the other master plumbers and representatives from the local union, No. 67, and the plumbing inspector, Thos. Jones, of the Herbert Jones Co., and Chas. Rogers, of the Standard Sanitary Co.

The evening was spent in a most enjoyable manner with cards, speeches and vocal selections, after which light refreshments were served. The meeting was brought to a close at an early hour with all present voting it a real night and hoping that there will be more to follow.

Pipe Line Contract Awarded at Guelph

GUELPH, Ont—At a special meeting of the city council to consider the report of the fire, light and water committee regarding the acceptance of the tender of the Pacific Coast Pipe Company for the supplying of material for the new pipe line, it was decided to give the said company the contract. The company has agreed to send 3,000 feet of pipe per week. The price paid for the 24-inch pipe is $2.26 per foot, $1.04 for 12-inch and 71½ cents for 8-inch. Twenty-five thousand feet will be required, all told. The total cost will be about $100,000.

Apex Electrical Manufacturing Co., Ltd., capital $10,000, head office Toronto, Ont., plans to manufacture and deal in hardware, electrical appliances, tools and utensils.

Automobile Service Syndicate Ltd., capital $50,000, head office Toronto, plans to establish service stations for automobiles.

Ontario Executive May Hold Meeting in Ottawa Next Week

Plan to Take Up Matters in Connection With Organization With the Men in the Trade in the Eastern District

PRELIMINARY arrangements are being made with a view to having a meeting at Ottawa between the Executive Committee of the Ontario Society of Domestic Sanitary and Heating Engineers, and the members of the Canadian Association of Building and Construction Industries. The latter organization is holding its annual meeting at Ottawa on February 3, 4 and 5, and it is the intention of the Ontario Executive of the Sanitary Engineers to take up with them a number of questions, in which, it is felt, that both have a common interest. There are many problems at the present time in the building trades and in the plumbing trade which are closely allied, and by working together it is felt that a big step can be taken in solving the problems.

In case this joint meeting is arranged for, it is the intention of the members of the Ontario Executive to hold a special meeting while they are in Ottawa, to which the Master Plumbers of the city and district will be invited. If this meeting can be arranged, it is intended to discuss with the men in the trade at Ottawa various problems, especially those in connection with the organization work which is being carried on throughout Ontario.

Making Good Progress

Splendid progress is being made by the Ontario society in this work, and it is the earnest desire of the Executive Committee that all the men in the trade throughout the province co-operate fully with them in what is being done. If their efforts are seconded in all parts of the province it is felt that the entire plumbing trade of the province can be placed on a new footing. There is urgent need of better business system, especially a more definite knowledge of the requirements of overhead, and it is the idea of the Executive officers to go into this matter fully and educate the men in the trade to the importance of doing business on a business-like plan. There are also various trade problems which need attention, and by working together and closely co-operating it is felt that these can be quickly solved.

The Annual Meeting

The annual meeting of the society will be held in April, and from present indications some of the most satisfactory reports in the history of the organization will be presented. The Executive Committee has been carrying on an active campaign in various sections of the province for some months, and the results are beginning to be apparent. A great deal has been accomplished, but there is a great deal yet to be done, and it is only by securing the active co-operation of every master plumber that the results which it is desired to obtain will be secured.

Between now and April the members of the Executive intend to hold several other meetings in addition to that which is contemplated at Ottawa. The points where these will be held have not yet been selected. But the Executive will be glad to take up with any of the men in the trade any of their problems and arrange meetings, if they will let them know about this matter.

Annual Ball and "At Home" of Toronto Society Was a Most Successful Affair

THE annual ball and "At Home" of the Toronto Society of Domestic Sanitary and Heating Engineers held on Friday evening in the Canadian Foresters' Building was in every way a most successful and most enjoyable gathering. Owing to the war the members of the Toronto Society were forced to skip several of these "At Homes," but on Friday evening they more than made up for what had been missed by packing into one evening all that might have been enjoyed at the others.

Right from the start things went with a swing. There was not a dull moment for anybody and everyone present had the best kind of a time. There was an excellent turnout, at least 300 being present, and the opinion was unanimously expressed that the evening was one of the most enjoyable in the history of the Society.

The rooms were most attractively arranged for the occasion and the program for the evening provided entertainment for everyone. The committee in charge of the arrangements and responsible for the success of the "At Home" comprised President George Clapperton, Treasurer Harry C. Waterman, Secretary Fred H. Gentle.

Contracts Awarded

J. Kerr has plumbing contract for new store and residence costing $5,000 at Hamilton, Ont., for H. Dunham, 18 Grosvenor Ave.

W. J. McGuire & Co., 332 Craig St., Montreal, have plumbing and heating contract for new $200,000 theatre at Ottawa for Loew's.

John Semple has contract for plumbing for new $9,000 residence at Brockville, Ont., for E. J. Barker, of Chicago.

P. J. Smith has plumbing and James Dow the heating contracts for two residences costing $6,000 for W. E. Louden, 39 Lottridge St., Hamilton, Ont.

The city council of St. Thomas, Ont., has awarded contract for new electrically-operated waterworks pumps to Goldie & McCulloch, of Galt, at $23,000.

Contract for plumbing, heating and ventilating in connection with new school at Windsor, Ont., costing $400,000, has been awarded to W. J. McGuire Co., 91 Jarvis St., Toronto.

W. R. Willis has the plumbing and the Pease Heating Co. the heating for new $7,000 residence for T. J. Madill, 105 Albertus Ave., Toronto.

John Colford has plumbing and heating for new dwelling costing $7,500 for T. McBrearty, 624 Madison Ave., Montreal.

The city council of Winnipeg has awarded contract for cast iron water mains to the Canada Iron Corporation at $7,512.

T. Maxwell has plumbing and heating for two dwellings costing $6,000 for J. Ewing, 1625 Bloor St., Toronto.

Tenders

The Andrews Wire Co., of Watford, Ont., contemplates erecting a new $50,000 factory at Strathroy, Ont., in the spring.

The council at Grand Mere, Quebec, is having plans prepared for the construction of a new waterworks system to cost $200.000. P. C. Neault, mayor.

By-law authorizing construction of a new waterworks system has been passed by the ratepayers of Courtright, Ont. J. W. James, reeve.

T. L. Church, chairman of the Board of Control, Toronto, will receive tenders until February 10 for supply of one or more centrifugal pumps having a capacity of from 16,000,000 to 20,000,000 Imperial gallons.

The town council of Drumheller, Alberta, contemplates constructing a sewer system and plans are to be prepared. It is expected that work will commence during the summer. Harold A. Brown is secretary-treasurer of the Utilities Board.

(Continued on page 36)

Waterworks Strike at Montreal

While Very Serious in Its Aspects, the Trade Does Not Report Major Difficulties—Settlement Reached

Montreal.—While the whole proposition looked ugly for a time, threatening to cut off the water supplies of a very large section of its citizens, the strike of employees engaged at the civic waterworks plant is practically a thing of the past.

Without notice, engineers, pumpmen, firemen and other mechanics struck on New Year's Eve, at midnight, and thus placed the city in a serious predicament. It was expected, of course, that, placed in this position, the city would necessarily have to treat with the men at once, grant them what they asked, and so give the workmen a favorable verdict, leaving in their hands a decision that might be used later to further the interests or demands of the mechanics.

Effect on Plumbing Trade

SANITARY ENGINEER made enquiries of master plumbers and steamfitters, asking if the strike had caused much extra work, and if difficulties had arisen from the bursting of water pipes, etc.; but all replies indicate that, excepting for numerous telephone calls, there was but a limited amount of new work traceable to the shortage of water pressure.

Difficulties were greatest in the "upper" levels of the city, the pressure of the various pumps being very much reduced, and the reservoirs suffering a loss in the average contents carried normally.

"There were many enquiries over the telephone, as to what to do when the pressure had gone off, and some thought that, because this had happened, they would not be able to run their heating apparatus," said one master to SANITARY ENGINEER. "But, after explaining to them that they need have no fear, as only a little water is required, there was no trouble."

Hiccough Story "Rot," Declares Chairman

"That is all rot," was the way Dr. Gordon Bell, chairman of the Manitoba Board of Health, characterized newspaper reports from Winnipeg that he had said that an epidemic of hiccoughs soon would sweep the country. "What I said in my address before the Sanitary Inspectors' Association at Winnipeg was that we had an epidemic of hiccoughs in Manitoba co-incident with the sleeping sickness epidemic," he said. "I further said that I believed the hiccough was a mild form of the sleeping sickness. In Winnipeg, we had about 80 cases of persistent hiccoughs, lasting from 48 hours to five days; but the epidemic is dying out just now, just as the more serious one is."

"And you don't think there is likely to be a country-wide epidemic of hiccoughs?"

"I have no reason whatever to believe there will be one. Apparently, one of those sanitary inspectors misrepresented me when he got outside, because nothing that I said warranted the statement attributed to me."

Earlscourt Seeking Public Convenience

Toronto.—Now that it seems certain that Danforth Avenue is to have a new public convenience, Earlscourt is getting fidgety about the chances of the one promised for this district some years ago. The matter was taken up and spoken of by many of the municipal candidates at the last election; in fact, one candidate promised, if elected, that he would make a special effort to have this very-much-needed convenience as soon after he was a member of the council. He was defeated; but other candidates who were elected are now expected to get busy and to make a noise in the City Council. Ald. George Birdsall, D. C. MacGregor and Brook Sykes have all promised to take care of this, and Earlscourt expects them to keep the agitation active.

Boiler Tubes Burn When Pump Stopped

Hamilton, Ont.—A somewhat unusual accident, of interest to men in the steam heating business, occurred at the Court House, when the pump which is depended upon to supply the boilers with water failed to work, and the boilers went dry. The tubes were badly burned in four boilers, and there was no heat in the buildings, with the result that court had to suspend temporarily.

It is supposed that the float which regulates the flow of water to the boilers became bound. On account of the registry office being connected with the heating system, there wasn't enough condensation from the court house proper to keep the boilers supplied after the pump failed to act.

Steamfitters were called in at once to insert new tubes. The repairs cost several hundred dollars.

Incorporations

Sanitary Plumbing Company, Limited, head office, Ottawa, capital $50,000, plans to manufacture and deal in plumbing supplies and equipment.

Toronto Cement Products, Limited, head office Toronto, capital $40,000, plans to manufacture and deal in sewer pipes and cement products.

Acme Burner and Heater Company, Limited, capital $200,000, head office Toronto, plans to manufacture and deal in heating equipment.

Work Not Retarded By Contractor's Failure

HAMILTON, Ont.—Twenty-three of the twenty-five houses being constructed for the Housing Commission left unfinished by the contractor who, as stated in a previous issue of SANITARY ENGINEER, resigned, are being proceeded with, according to Secretary Campbell. A request has been made for an estimate to complete one of the remaining two and the other is expected to be in the same category shortly.

The work of the commission has not been retarded by the failure of the contractor. Applications continue to come in daily. The commission now has nearly one hundred houses under construction.

Berry Must Sue if He Wants Damages

Toronto.—If John Berry is to collect anything from the city in the way of damages for alleged infringement of patent in connection with the appliance for chlorinating the water, it must be through the courts. This was the decision reached at a meeting of the Board of Control.

The original claim was for $77,000, Mr. Berry stating that the city was using machinery that infringed patents held by him. He offered to compromise on $35,000, but the Board, after being assured by Mr. Harris and other officials that there was absolutely no infringement, declined to consider any compromise, and intimated that Mr. Berry was welcome to proceed with legal action.

More New Homes Urgently Required

WINDSOR, Ont.—Urging civic action to relieve the housing situation, which, he said, was the most serious problem the Council would have to deal with this year, and which was retarding development of the city, Mayor Winter, in his address to the new Council, expressed hope that the Government Housing Plan would be taken full advantage of. Saying that more than 300 persons had already availed themselves of the Government's plan, the Mayor pointed out that approximately $700,000 was still available to the people of Windsor for home building.

Come Awa' Wi' Me and Hae a Wee Bit Curl, Sandy

Montreal Plumbers Again Throw the "Stanes" at Annual Bonspiel—A Rousing Afternoon in Which Winner Ballantyne Takes All the Prizes and "Beats It"

MONTREAL.—"The spiel's on Monday afternoon. Can you come along?"

Such a breezy invitation from John Watson came "over the wire" to SANITARY ENGINEER, and, boy, they were all there, believe it, and "wi' bells on," the sweet melody-producin' kind, what?

When it comes to curling, Montreal is the centre of gravity. Just come this way, if you don't believe it, ring up James Ballantyne, John Watson, Jim Griffin, Capt. Dan Bethune, Peter Ogilvie, Telesphore Latourelle—oh, well, it doesn't matter much which, they are all there with the glad hand when visitors arrive. And they will convey you to two of as pretty sheets of ice as you ever saw. Aye, and you can throw irons or granites; but take a tip—use the irons, mon, and you'll score.

Calls Game Early

One of the "boys" wanted to get away right after the holidays, and so the "Spiel" was slated earlier than usual this year. This proved desirable, and fortunate, for "we never had better ice," said Skip Watson. It was "just right," and, by way of contrast, it was a treat compared with the conditions of last February, when the rinks were "heavy."

It always is a satisfaction to get on the ice early in the curling season, and particularly so as it gives one an appetite for all available games that can be arranged for. The only drawback, usually, is that of ice being scarce, for there are hundreds of enthusiasts, and when the real "artists" begin to throw the "boulders," it is mighty hard to get free ice just when one wants it. Games there will still be this winter—just as many as can be conveniently scheduled.

These Rules Governed

Master Plumbers' Bonspiel.

Caledonia Rink, Dec. 29, 1919, 2 p.m.

Four rinks to play off in three draws. Draw 1—Four ends, two rinks playing on No. 1 sheet, and two on No. 2 sheet. Winner on No. 1 played loser on No. 2, and winner on No. 2 played loser on No. 1.

Draw No. 2

Consisted of 10 ends, the two rinks having the highest score in this playing off in the third draw, and which was for six ends. Winners of third draw declared the winners.

A feature of interest was that the third draw winners might be challenged to a subsequent match by any rink playing in this contest, thus promising a line-up for subsequent games. This contest, according to the rules, will be for not less than ten ends, ice and dates to be mutually agreed upon. The winners of this subsequent match will be known as the Champions of the Montreal and District Master Plumbers' Trade. All games were played with irons.

The Rinks

H. Lavigueur, lead; J. Greenough, second; H. W. Munday, third; D. A. Bethune, skip.

Telesphore Latourelle, lead; Thomas Bain, second; James Buchan, third; James Ballantyne, skip.

Arthur Noel, lead; W. Hughes, second; John A. Gordon, third; James Griffin, skip.

Belisle, lead; P. C. Ogilvie, second; Martin J. Quigley, third; John Watson, skip.

First Draw

Number Two Rink—James Ballantyne, 5; James Griffin, 3.

Number One Rink—D. A. Bethune, 1; John Watson, 4.

Number Two Rink—James Ballantyne, 10; D. A. Bethune, 6.

Number Four Rink—John Watson, 10; James Griffin, 3.

Finals—James Ballantyne, 8; John Watson, 6.

James Ballantyne has a record for "bringin' home the bacon" when it comes to curlin'. Not only so, but he carries off the medals in a way that—well, as one of the "fallen" said, "We all like him, he's a fine sport and plays a clean, clever game." And so, even though the prizes went to the winner, he was congratulated on his good luck and skill.

Warden-King, Limited, presented the first prize of four fine umbrellas. Now, when it's wet, the Ballantyne rink will play anyway, it doesn't matter a great deal what the weather conditions are.

As a mark of appreciation for his good work, the Thos. Robertson Co. presented Mr. Ballantyne with a gold penknife, and the James Robertson Co. supplied the four lucky winners with a box each of select Havanas.

Following the successful "fishin'" of the afternoon, Skip Ballantyne gathered his increment together and "beat it" for Winnipeg, and although his whereabouts are not exactly known, he promises to return ere long. More swift matches are likely to follow before the close of the present season.

Heard on the Side

John Gordon again officiated as "butler." The cupboard could not be called "dry," but most of the contents were "extra dry," but all wool and a yard wide.

"Come awa' noo and gie me a draw; another like that and we're in the winners' class, boy," from John Watson.

Belisle was said to be "on" to the game from beginning to end, and threw some nice stanes, though not an old-timer.

If the Bon Entente needs any support, it will do well to look up the Montreal Master Plumbers. Teles. Latourelle and his confreres are right there with a will.

Peter Ogilvie found the game a great solace after weary nights spent in wrestling with the Montreal plumbing by-laws.

President (Capt.) D. A. Bethune says, "Better luck next time, boys."

Martin Quigley likes a certain kind of race awfully well. Just wait till he gets a "hand in" on those stanes, and there'll be stars in the record of Watson's rink.

It was fine ice, but not the right day of the week for H. W. Munday.

Thos. Bain wanted to say, "Stop your buckin'," to Ballantyne's "third," but 'twas no use.

The "Hughes" shed by the bright sun were welcome.

Greenough is in his second winter, but bids fair to become a winner.

Ninth Annual Convention of the Canada Metal Company, Limited

THE ninth annual sales convention opened at the head office of The Canada Metal Co., Limited, in Toronto.

Forty-five salesmen were assembled when Mr. Harris, Sr., president and general manager of the company, gave an address of welcome, in which he stated what a great pleasure it was for him to once more meet them all together at the home office.

He further added that whilst 1919 had been a most strenuous year, and in fact the biggest and best year, yet all indications point to 1920 being one of the most prosperous for everybody in the history of Canada.

Mr. Harris continued that he wished to impress upon them that their watchword was SERVICE and it was upon the foundation of service that the company's business had been built.

Mr. Harris, Jr., then took charge of the convention. In his opening remarks, he pointed clearly to the object of the convention. He stated this was a sales promotion convention and it is quite easy for any person to sit still and look wise, yet what was required of every individual in the room was real thought later expressed in words.

During the progress of the convention, the sales for the year would be fully dealt with in special reports. In this report, as each individual salesman was criticized, strong points and weaknesses would be shown, for no matter how excellent results might be attained by any individual salesman, yet upon careful investigation some weak spot might be discovered.

He further added there are two kinds of criticism. Our criticism during the convention must be taken as constructive. Constructive criticism is good, because many times it is the means of improving the thing criticized. It analyzes, weighs, compares and scrutinizes from every angle.

During Monday's session, many leading lines were discussed and practical demonstrations were given of the company's manufactured products.

The salesmen were shown the pure pig lead being melted and poured into slabs, and the different stages of rolling sheet lead to different thicknesses.

They also witnessed the process of manufacture of lead bends, pipe of various sizes, nails, laundry tubs, etc. A practical plumber also gave demonstrations of wiping joints with different grades of solder.

Monday evening, the whole staff was entertained to dinner at the Queen's Hotel, and after dinner, Mr. Harris, Jr., made a presentation to every one of a life insurance policy, as he stated the presentation was made as a slight token of appreciation from the firm for the loyalty of its managers and salesmen and to commemorate the largest year's business in the firm's history.

Votes of thanks were passed unanimously to Mr. Harris, Sr., and to Mr. Harris, Jr., for their kind consideration to the employees. A vote of thanks was also passed to Mr. H. C. Crow for the able assistance which he had given to the managers of the branches and the salesmen throughout the past year. Mr. Harris, Jr., arose and stated that he would like to see his name and Mr. Harris, Sr.'s name as president of the company joined in that resolution as they all thoroughly appreciated the value and assistance which Mr. Crow rendered from time to time to everyone. The evening was spent at the Royal Alexandra and finished a most enjoyable day.

DEVIL NO. 1.—Is on the job bright and early. Whispers: "No use trying to see your man before 9.30—give him time to open his mail." And if you waver for an instant he straightway devours the front end of your precious morning.

DEVIL NO. 2.—Get into the game at mid-day. "It is now a quarter to twelve," he adroitly suggests. "If you see your man now he will be hungry and will bustle you out so as not to be late for lunch." If you agree to this and knock off for lunch yourself he will tell you that "You won't see your man before 2 o'clock. He won't be back."

DEVIL NO. 3.—Appears early in the afternoon and whispers: "It is getting dark; you can't start an interview when your man will be tired and inattentive." And before you know it this third imp will gobble up the other end of your day.

DEVIL NO. 4.—Is perhaps the worst of all. His day is Saturday. "You can't do anything on Saturday," he will say; "it's a short day, and no one will have time to listen." And so without even allowing you to start out will swallow up the whole day.

BUT REMEMBER, THEY ARE LIARS, EVERY ONE.

Working Out Plan For New Housing Scheme

Winnipeg.—The abolition of the civic housing scheme was decided upon at a meeting of the Finance Committee when a delegation from the Housing Commission, headed by H. C. Thompson, city treasurer, declared that it was impracticable under existing conditions. The committee decided to replace the scheme with a new system, the details of which are being worked out.

HAVE ISSUED CALENDAR

The American Zinc, Lead and Smelting Company, 1001 Pierce Building, St. Louis, Mo., has issued to the trade a most attractive calendar. It is made of enameloid and the color scheme is blue border with gold and white interior. The calendar pad covers three months and is so arranged that one can refer either backward or ahead without turning any of the leaves. The dates of the present month are printed in red, while the dates of the month past and the month to come are printed in blue.

PLAN TO SPEND $250,000

NORTH SYDNEY, N. S.—It is announced by the Western Union Telegraph Company that $250,000 has been set aside for the purpose of assisting married employees to erect homes.

The illustration shows the forty-five salesmen of the Canada Metal Company, Limited, who attended the ninth annual convention held in Toronto.

May Be Radical Revisions in Steel Prices and Delivery in July

The whole situation in regard to steel prices and delivery at the present time is probably without a parallel in the history of the trade.

Discussing the outlook with SANITARY ENGINEER, *Mr. A. T. Enlow, president of the Dominion Sheet Metal Corporation, Hamilton, Ont., said:*

In the spring of 1919 almost every producer of steel was vigorously soliciting trade, and in many cases offering inducements below the reduced prices established March 21, 1919, in the U.S.

Since then a most demoralizing steel strike killed 80% of the possible production for a period of eight to twelve weeks, followed immediately by a coal strike which prevented resumptions and kept down production for another six to eight weeks.

SERIOUS SHORTAGE

Largely due to these causes there is a serious shortage of steel in all forms, and the characteristic result is a wild rush to buy at any price. The market is the most peculiar in the history of the trade, inasmuch as mills all claim to be sold up and prices are nominal only, yet immense tonnages are being booked through "underground channels" at extremely high prices, and accordingly most producers are now really sold up for many months.

Now a buyer will only take delivery of such tonnage while the "Boom" is raging. The least sign of a decline and he talks cancellation or will refuse to accept when shipped, hence if anything should occur to disturb the general financial situation in the U.S. all these tonnages will vanish overnight, and present high premiums will disappear.

RADICAL REVISIONS

Is seems reasonably certain that present conditions will prevail until July at least, but beyond that date there is every prospect of radical revisions both in price and delivery.

Steel alternates between the dual roles of "Prince and Pauper" and the latter's turn comes next.

I would say that the student of business trends will buy sparringly at present prices, because better conditions for the buyer are inevitable and possibly much sooner than is generally expected.

NEW GOODS

BOILER SEAL

The Economy Scale Remover Co., Inc., Chicago Heights, Ill., are putting on the market a new preparation, which they call Economy Boiler Seal. They claim it will immediately stop leaks in boilers, and that it is equally effective in both tubular and cast boilers, also that it will stop all leaks in from ten to thirty minutes' time, thus permitting continuous use of boiler.

The main features, as pointed out by the manufacturers, are that it will not injure or in any way affect the efficiency of any boiler or hot water radiator. Its formula is compounded on scientific lines in order to save the cost and instalment of new castings, and also to save time and delay, which is often not only inconvenient, but frequently disastrous; also to stop leaks permanently, as well as removing the scale and incrustation from walls of boilers, so that same may be easily washed out with hose.

The Boiler Seal is claimed to repair all leaks in steam heating boilers, although a much greater amount is required in hot water boilers, in order to enable it to coat the water ways of the boiler, so as to prevent rust pit leaks.

Another feature is said to be that it does not crystallize under fire, and it is not necessary to know what sections or tubes are leaking or loose.

Boiler Seal

Campaign Against Deceptive Advertising

NEW YORK, Jan. 29.—With the aid of the National Vigilance Committee of the Associated Advertising Clubs of the world, and local vigilance committees and better business bureaus of local advertising clubs, the War Department is inaugurating a campaign against the deceptive advertising and sale of goods by merchants operating what they call Army and Navy Stores.

At the request of B. A. Mattingly, chief of the sales promotion section of the War Department, the National Vigilance Committee of the Advertising Clubs has just issued a bulletin to local advertising clubs, pointing out some of the dangers to the public in connection with such operations, and suggesting action on the part of local committees. In part this bulletin is as follows:

"The Government is retailing the surplus army and navy goods through its twenty-five stores distributed over the country, known as 'Army Quartermaster's Retail Stores Division.' Unscrupulous men are everywhere taking advantage of this situation, imposing their self-named 'Army and Navy Stores' upon an uninformed public. Only governments have armies and navies. The use of either of these words in the trade name of a store may create the impression at this time that such an establishment is an official outlet for Government goods."

Will Assist Merchants in Better Accounting Methods

Saskatchewan Branch of R.M.A. Plan to Help Members in Many Ways—Educative Moving Pictures and Assistance in Preparing Advertising Part of the Scheme

F. E. RAYMOND, secretary of the Saskatchewan Retail Merchants' Association, was one of the delegates from the West at the special meeting of the Dominion board of the R.M.A. last week. The Saskatchewan board, according to Mr. Raymond, has a very aggressive campaign mapped out for the future to assist their members.

"We are making plans," he said to SANITARY ENGINEER, "to establish district organizations, each to be looked after by a district secretary familiar with the retail trade, who will be able to assist merchants to better accounting methods and to prevent or at least cut down bad debts. We have already one of these organizations in operation with Assiniboia as the centre. These districts will be about 100 miles square. The district secretary will travel throughout the district, hold meetings, arrange list of delinquent accounts and 'slow pays,' so that members of the organization will benefit by knowing exactly where each consumer in the section stands in regard to payment of his or her account."

"What is the fee charged the merchant for this service?" Mr. Raymond was asked.

"Our Provincial fee is $15 per year, having recently raised from $12. The district fee is $40, but the service is of an intensive character and as it means, to a large extent, the elimination of bad debts, it is easily worth that and more to each merchant who is a member.

Educative Moving Pictures

"It is also our intention, if possible, to arrange a series of educative moving picture shows for the benefit of members in each town. For instance, we will endeavor to secure films from manufacturers showing the manufacture of their products from the raw material to the finished article.

"Another service which we are giving our subscribers is a service on retail advertising. At our head office in Saskatoon we have a manager in charge of this work who prepares advertisements for local newspapers, circular letters, posters, bills, etc. We charge, of course, a fee to cover cost of this service. We find many of our members availing themselves of this service, which is proving quite popular throughout the province."

The Western delegation to the special meeting of the Dominion board at Ottawa included, besides Mr. Raymond, J. A. Banfield, president of the Dominion board; Mr. Humphries, of Humphries & Stiles; Mr. Loftus, solicitor for the Manitoba branch; W. P. Ball, vice-president, Saskatchewan Provincial board, Assiniboia, Sask.; G. S. Hougham, Vancouver, Provincial secretary of the British Columbia Association; Mr. McRobie, Vancouver, president of the B. C. Association; Jas. Kellas, of Medicine Hat, Alta., provincial secretary for the Alberta Association, and Mr. Box, president, Manitoba Provincial board, Souris, Man.

Will Ask Women to Do Their Shopping Early on Saturdays

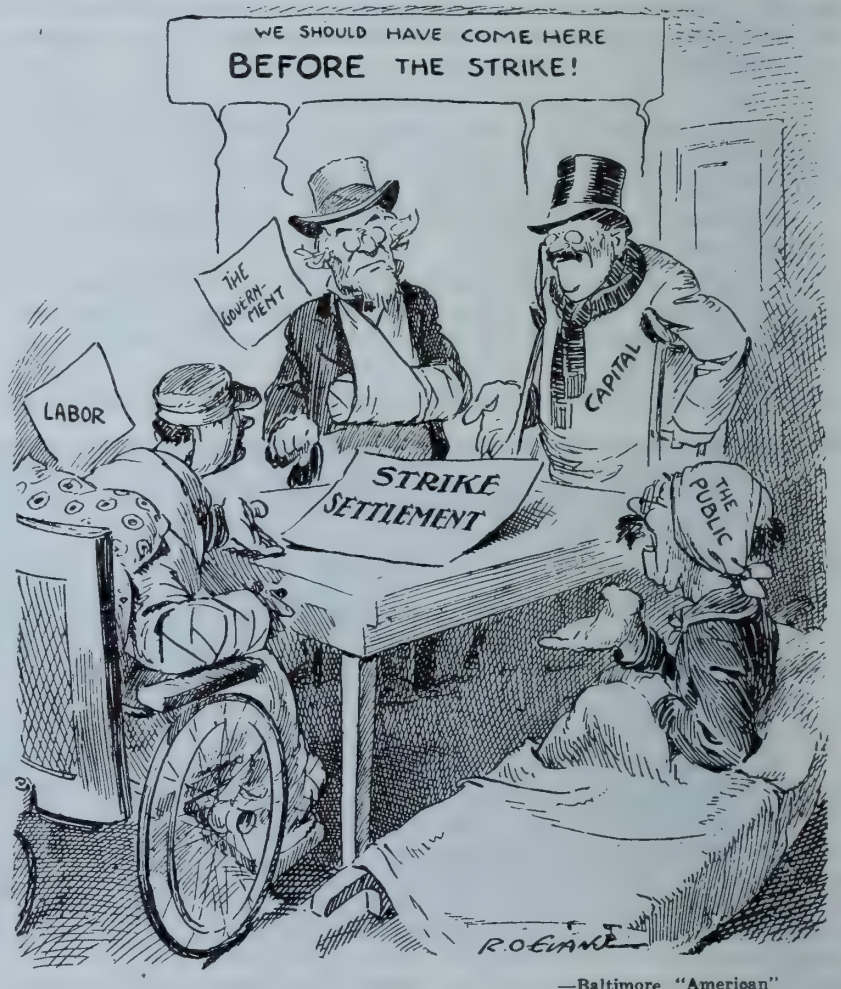
Clerks' Association at St. John, New Brunswick, is Behind Movement to Secure a Saturday Half-Holiday—Plan to Have Employees Paid on Friday Nights

ST. JOHN, N.B.—At a meeting of the Clerks' Association the matter of increased membership was discussed. This association is endeavoring to secure Saturday afternoon as a half-holiday, among its different projects.

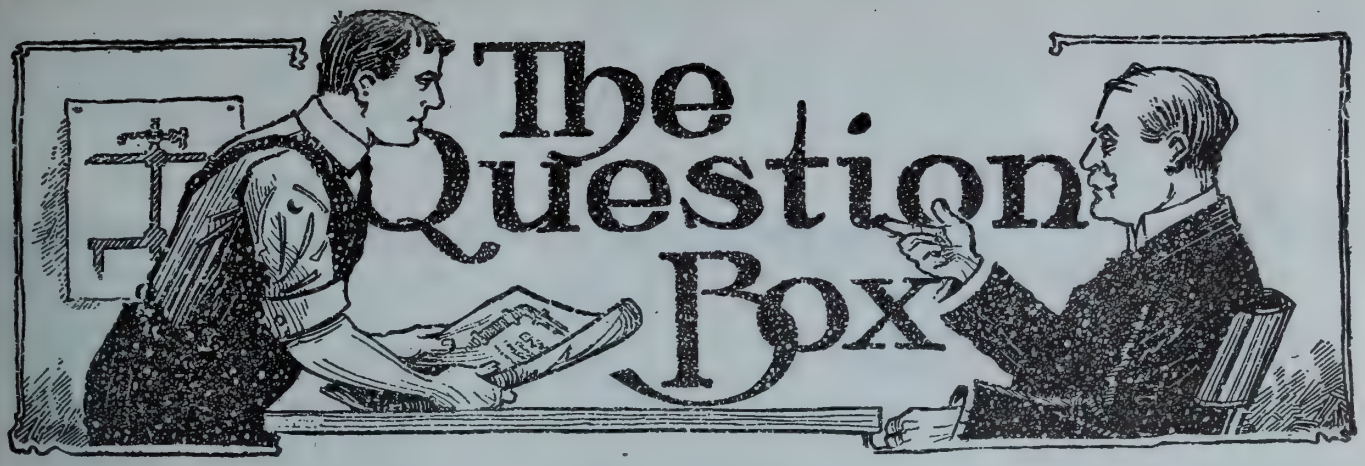
A resolution was passed that the members appeal to the Women's Council, the Young Women's Patriotic Association, the Trades and Labor Council, and other bodies about the city, and ask that their members do their shopping before 1 o'clock on Saturday, so that the shop employees might benefit by the half-holiday.

In the case of trades and labor, the request is to be made to the employers that their employees be paid on Friday night in order that there may be more general co-operation with the idea.

THE PRICE OF EXPERIENCE



—Baltimore "American"

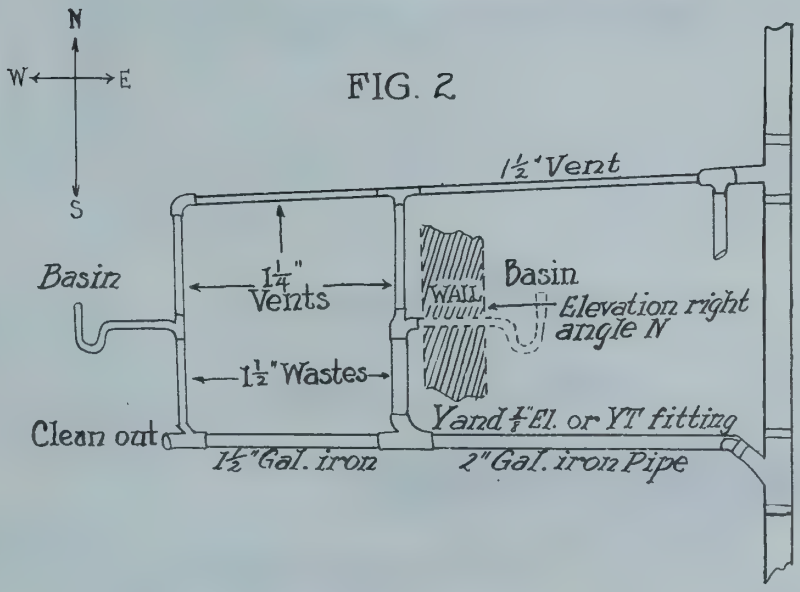


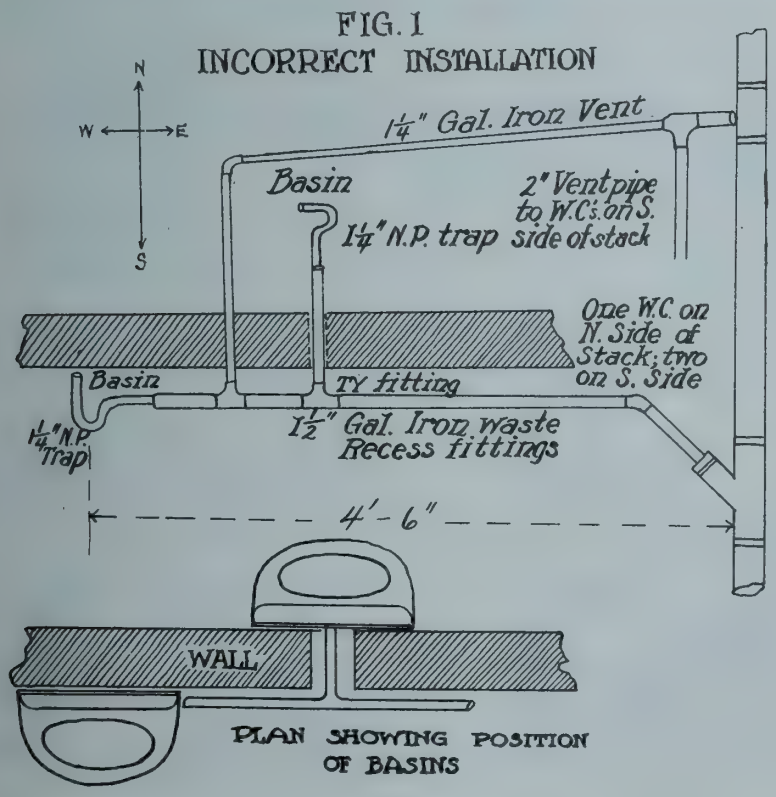
The plumbing inspector of a Western city sends the following:

Editor, SANITARY ENGINEER:

A short time ago I was called to inspect and test a job in one of our offices here, and the installation shown in Fig. 1 is what I was called upon to pass. I turned it down as not being installed in a practical manner, nor according to our by-law regulations. The party who installed the work refused to change it, claiming that it complied with the city ordinance and was a "perfect" job. I had, eventually, to invoke the assistance of the local magistrate to make him comply, although he maintained, and still maintains, that the job was "perfect."

I would like your candid comment on Fig. 1 through SANITARY ENGINEER, and if it in any way complies with our regulations. I enclose sketches showing three different ways they could have been installed according to our by-law.





The faults I found: Waste line for second basin should be 2 in.; one basin not vented; 1¼ inch vent installed to carry two basins, instead of 1½ in.; a T Y fitting on branch connection no clean-out. The whole installation appears to me a "skinned" job, but what gets my goat, as the saying is, for a practical man to maintain and insist that the job is right, is ridiculous.

The Answer

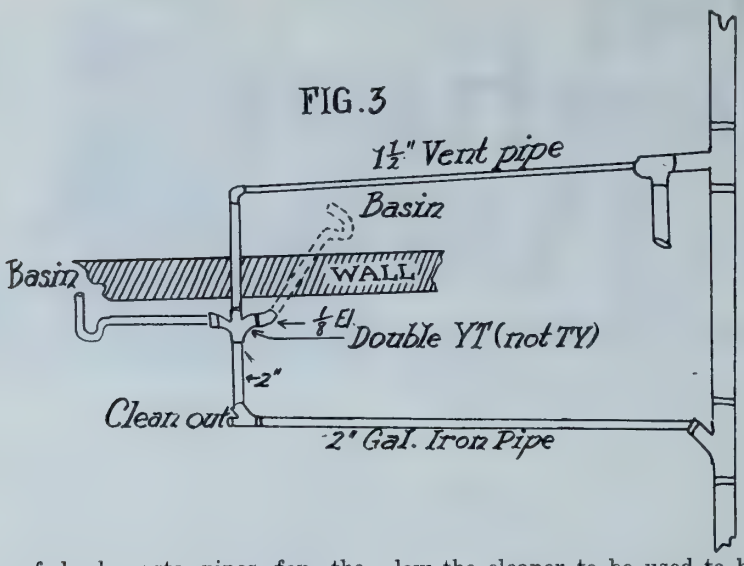
The work shown in sketch No. 1 does not conform to clauses 8, 17, 20 of by-law, and the work has been installed in a very unsanitary manner and not according to good practice.

The T Y used for basin No. 1 is objectionable to clause 8, which states that all branch connections shall be made with Ys and ⅛ bends, besides the arrangement of wastes is liable to allow part of discharge from basin No. 2 to pass into trap of No. 1.

Trap Not Vented

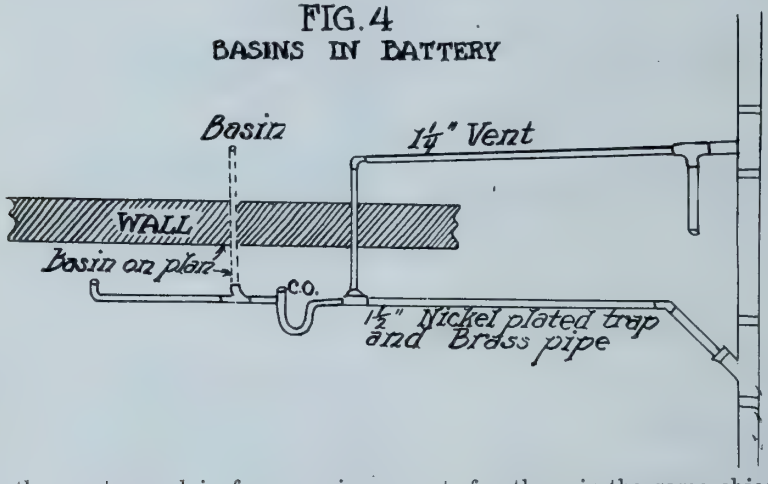
The arrangement of vent leaves one of the traps not vented, as clause 17 states that a 1¼ inch vent may be used for only one 1¼ inch trap, then one serves two 1¼ in. traps; and clause 20 states that all basins shall be properly

trapped and vented. The amendment passed in 1913 has no bearing on the case, as there is no clause which speaks of sizes of lead waste pipes for the various fixtures.



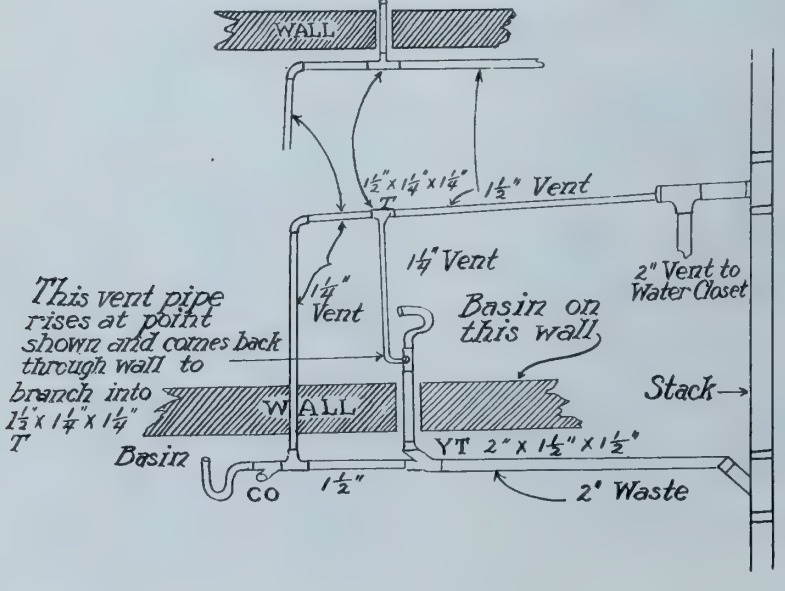
The Ideal Way

Sketch No. 2 is an ideal way of arranging the wastes and is far superior to either 1, 3 or 4 sketches. The only alteration we would suggest is to interchange the Y and ⅛ bend used on waste of basin No. 2, that is, to use the rake-off Y to receive waste and place the ⅛ bend on the horizontal. This would allow the cleaner to be used to better advantage.



Is Not So Good

Sketch No. 3 is not a good arrangement, for there is the same objection to the double T Y as there is to the single T Y of sketch No. 1. That is, the discharge of one basin is liable to and often does pass into the trap of the other basin, preventing them being self-cleansing. Neither do we see the necessity of increasing the waste to 2 in., as a 1½ in., well washed, is better than a 2 in. only half washed.



Not Good Practice

Sketch No. 4, while perhaps within the provisions of the by-law, is not according to good practice, as there will be a constant current of air passing from one basin to the other through the coated and foul waste pipe, which is sure to bring foul odors into the room.

We are sending you copy of the proposed new plumbing regulations for the Province of Ontario.

TENDERS

(Continued from page 29)

The council at Fonthill, Ont., is taking up the question of installing a waterworks system. Councillor Albert Learn, chairman of committee.

Extensions to the waterworks system costing $500,000 are planned at Windsor, Ont.

Tenders will be received until March 5 in connection with the erection at Calgary of a new post office. J. M. Stevenson, of Dowler and Stevenson, architect, Calgary.

Plans for a new school to cost $25,000 are being prepared at Carleton Place, Ont. A. R. Peden, secretary of Board.

Plans are being prepared at Hull, Quebec, for a new technical college to cost $150,000. R. Lafond, president of the Board.

Prices of plumbing, heating and electrical work are wanted by H. Lendon, Leamington, Ont., in connection with erection of new business block costing $15,000.

Plans are to be prepared for a new theatre at Regina to cost $250,000 for the Trans-Canada Theatre Co., R. J. Lydiatt, Calgary, vice-president.

Plans are to be prepared for a $1,000,000 hotel at Windsor, Ont., for the Border Cities Hotel Co., H. H. Walker, Walkerville, Ont., president.

The Owen Sound Housing Commission, Owen Sound, Ont., wants prices on plumbing and heating equipment in connection with new dwellings to be erected at a cost of $200,000.

L. A. Carrothers, Hydro offices, London, Ont., is preparing plans for new school to be erected at a cost of $90,000.

The Nova Scotia Steel & Coal Company plans to erect 100 dwellings for workingmen at Thorburn, N.S., at a cost of $200,000. Prices wanted on all plumbing and heating equipment.

Market Conditions and Tendencies

Statements Regarding Supplies and Trend of Prices

THE MARKETS AT A GLANCE

SHARP advances in many important commodities are again noted. Among the most important advances are: Well pumps, which are about 15 per cent. higher. Eavestrough and conductor pipe, metallic shingles and siding, also the sundries for applying. Prices on fittings have been withdrawn and higher prices are pending.

Soil pipe prices are held firmly and higher prices may be announced. The shortage of pipe skelp continues to be a factor in the pipe situation. Enamelware is reported to be coming in in larger quantities and heavy demands are looked for during the present year. The high rate of exchange is a big factor in the higher prices charged.

Business, generally, is reported brisk, notwithstanding the high prices being charged. The present slow movement of freight is said to be a drawback, although it is not an unusual situation for this season of the year, due to the cold weather and heavy snowfalls.

Many are wondering what lies beyond the second half of the present year in the way of price changes, although some are looking forward with confidence to a busy, prosperous year.

TORONTO, Jan. 30.—Continued advances in many important commodities are noted. The list of advances include well pumps, eavestrough and conductor pipes, metallic shngles and sidings, also the sundries for applying.

Prices on fittings have been withdrawn and higher prices are pending. Soil pipe prices are holding firm and may be advanced. Pipe skelp continues to be scarce and is a strong factor in the present pipe situation.

The enamelware situation has improved and better shipments are reported. The demand is expected to be very heavy for this line. Range boilers are none too plentiful, owing to the difficulty in securing raw material, it is stated. However, notwithstanding the high prpices being charged, business is very brisk for this season of the year and all are looking forward to one of the best years in their history.

Metal Siding Prices Revised Upwards

METAL SIDING.—This commodity, in harmony with other galvanized lines of the same category, is now reported at new and higher prices. The prevailing price on galvanized metal siding is quoted at $9, while the painted remains the same as the former price of $6.50.

Metallic Shingles Up; Galvanized $10.50 sq.

METALLIC SHINGLES.—Owing to high prices of galvanized iron, also the scarcity, manufacturers state they have been forced to raise their prices on this commodity. The new prices on metallic shingles are quoted as follows: Galvanized is selling at $10.50 per square; painted is selling for $8 per square; while the sundries that go with this class of roofing have advanced, approximately, 2 to 5 cents a foot.

Well Pump Prices Jump About 15%

WELL PUMPS.—Higher prices have been announced on well pimps. The new advance shows an increase of, approximately, 15 per cent.

Salamanders Showing a Heavy Demand

SALAMANDERS are beginning to show considerable activity. This is said to be due to the changeable weather and many are requiring these to dry up the plaster of walls, etc.

The makers say that on account of the shortage of raw materials, they experience difficulty in supplying the present demand. The grates are said to be very hard to procure owing to the shortage of raw material and labor; the foundries being rushed to capacity with other work, it is said.

Range Boilers Firm; Are Selling Well

RANGE BOILERS are holding firm. Owing to the scarcity of raw material, this commodity has not been to plentiful and higher prices have been predicted for the future. Business continues very good. Some believe that the extra demand for what is usually a quiet season of the year is due to the housing situation, as in some cases people have been moving into unfinished houses, and are naturally anxious to rush to completion.

The present prices are as follows:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$12 00	$14 00
35-gallon	14 00	16 00
40-gallon	16 00	18 00
52-gallon	22 00	25 00
66-gallon	35 00	38 00
82-gallon	40 00	47 00
100-gallon	50 00	58 00
120-gallon	60 00	67 00

Boiler Tubes Firm; Slow Deliveries

BOILER TUBES.—The demand for this commodity continues to be very brisk and jobbers state that the cold weather has materially assisted sales, although they claim that the delivery from the mills has been very poor.

The present price remains very firm and the tendency is reported to be of an advancing nature and higher prices would not surprise many.

The following are the present prices:

	Per 100 feet	
BOILER TUBES—	Seamless	Lapweld
1 inch	$27 00	$.....
1¼ inch	29 00	.....
1½ inch	29 50	.....
1¾ inch	32 00	27 00
2 inch	31 00	26 00
2¼ inch	35 00	28 00
2½ inch	43 00	32 00
3 inch	48 00	40 00
3¼ inch	.....	47 00
3½ inch	60 00	44 00
4 inch	75 00	56 00

Oakum Firm; Prices Remain Steady

OAKUM.—Business, although seasonably quiet, is reported to be heavier than the same time last year. The outlook is said to be bright for a large turnover during the present year.

The present quotations are as follows:

	Per 100 lbs.
Best American	$22 00
Clipper, spun	22 00
Do., unspun	20 50
Plumbers' spun	10 50

Eavestrough and Conductor Pipe Higher

EAVETROUGH AND CONDUCTOR PIPE.—An advance has been proclaimed on each commodity. This has been intimated for some time in these pages. The new higher prices are approximately 10 per cent. higher than the previous quotation. Jobbers state that this is due to the scarcity of galvanized sheets, also to the higher cost of production. The new prices are as per current market quotation pages, and are marked at net list.

PIPE (Conductor)
Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10 ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

F.o.b. Toronto, Ottawa, Oshawa.
Net list.

Enamelware Firm; Better Deliveries

ENAMELWARE.—This commodity is said to be coming in in much larger shipments, and all indications point to a heavy demand during the present year. Some believe that if the exchange situation is adjusted there will be a big European demand for goods of Canadian manufacture, and state that if production is no greater than last year and the European demand continues, higher prices may be the result.

The following are the present quotations:

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	$37 05
Bath tubs, 5½ ft.	41 20
Lavatories—	
17x10" Apron F139 or P4745	11 05
18x24" Apron F154 or P3845 or P3847	17 00
18x21" Apron F169 or P4205	12 70
18x21" Roll rim F197, F199 or P4655-6	11 10
17x19" Roll rim F241 or P4345	9.05
Sinks, roll rim, 18 x 30 in.	16 60

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Sheets and Plates Scarce; Many High Prices Quoted

SHEETS AND PLATES.—Prices are nominal on this commodity and the scarcity is very pronounced.

Jobbers claim the demand was never so heavy as at the present time, and expect the situation might be slightly worse as the warmer weather comes on, figuring on the present demand being larger than the supply, which is usually the reverse this season of the year.

Jobbers express the situation on this commodity as tight, and claim that the scarcity is still prevalent. A new factor recently has entered the situation in the way of shortage. As is often the case during the cold weather and heavy snow storms, freight deliveries are seriously delayed, making any deliveries that were ready to ship hard for them to be transported.

The following are some of the prices quoted, although in most cases these are nominal.

BLACK SHEETS—

14 gauge	8 60
16 gauge	8 00
18-20 gauge	7 45
22-24 gauge	7 45
26 gauge	7 60
28 gauge	7 70
3-16 inch plate	
¼-inch boiler plate	

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS—

	Premier		Apollo	
10¾ oz.	$9 50	$10 00	$9 50	$10 45
U.S. 28	8 10	9 60	9 10	9 75
U.S. 26	8 80	9 30	8 80	9 40
22 and 24	8 65	9 15	8 65	8 20
18 and 20	8 50	9 00	8 50	9 00
16	8 35	8 85	8 35	8 80
12 and 14	8 20	8 70	8 20	8 55

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga. when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Corrugated Sheets Have Been Advanced

CORRUGATED SHEETS are reported at new and advanced prices. The pronounced shortage of flat sheets is said to be the main reason, and the high price of sheets cannot help but be reflected in the price of corrugated sheets, it is stated. The demand, although seasonably normal, is said to be heavier than the supply. The following are the present quotations:

Corrugated Sheets	Per 100 square feet Gal'zd.	Painted
No. 28 gauge	$9 25	$7 75
No. 26 gauge	10 00	8 75
No. 24 gauge	15 00	11 00
No. 22 gauge	17 50	13 75
No. 20 gauge	21 00	17 50
No. 18 gauge	26 50	21 50

Discount, 7½ per cent.

Pipe Fitting Prices Have Been Withdrawn

PIPE FITTINGS.—The prices on this line have been withdrawn, pending an advance, it is stated, and new higher prices will soon be issued. This is said to be due to the scarcity of raw materials, also the higher cost of labor and other factors.

SOIL PIPE, although sellinfi at a firm price, has so far shown no change. However, it is the belief of many that higher prices may take effect in this commodity.

The prices shown herewith are those ruling at present. The new prices will be announced in a later issue.

Medium and extra heavy soil pipe, 2, 3 5 and 6 in.	10%
Medium and extra heavy soil pipe, 4 in.	15%
Medium and extra heavy soil pipe fittings, 2 in. to 6 in.	25%
8 in. extra heavy pipe and fittings	5%

PIPE FITTINGS

Cast iron fittings	10%
Plugs	22%
Bushings	25%
Unions, ¼" to 2½"	40%
Do., ½", 3" and larger	35%
Dart unions, ¼-inch to 2-inch	25%
Do., 2½-inch and larger	15%
Nipples, up to 4 inch	70%
Do., 4½-inch and larger	60%
Do., running thread 4-in. and under	40%
Couplings, 4-in. and under	35%
Do., 4½-inch and larger	15%

MALLEABLE FITTINGS

	Black	Galv'd
Malleable Fittings, Class A, lb.	$0 57	$0 72
Do., Class B, lb. net	0 25	0 35
Do., Class C, lb. net	0 19	0 25

Cotton Waste Firm; Prices Unchanged

COTTON WASTE.—The demand for waste is said to be daily increasing and a good seasonable business is reported. The present quotations are from a firm basis and read as follows:

WASTE

Cream, Polishing	0 25
White—	
XXX	0 21
XX	0 19¾
X	0 18¾
XC	0 16½
Japanese	0 16
XXX Extra	0 22½
XX, grand	0 21
XLCR	0 19½
X Empire	0 18
X Press	0 16½
X Special	0 15
Colored—	
No. 5	0 16¾
No. 1	0 15¾
No. 7	0 14¾
No. 1A	0 13¾
No. 1B	0 12¾
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0 10
Wool Waste—	Per lb.
Arrow	0 35
Axle	0 28
Anvil	0 22
Anchor	0 20

Plumbers' Compression Work; Unchanged

COMPRESSION WORK.—No change is noted in the price of these commodities, although the present quotations are of a firm nature. It is hard to state just what the future will show in the way of prices, although present indications point upwards.

The following are quotations on some of the better known lines:

Compression work, standard	28%
Fuller work, standard	34%
Bath cocks, compression	30%
Bath cocks, Fuller	34%
Flatway stop and waste cocks, standard	32%
Roundway stop and waste cocks, standard	32%
Brass steam cocks, standard	Net List
Globe, angle and check vales, standard	5-9%
Do., removable disc	7-10%
Radiator valves, standard	15%-23%
Do., removable disc	40-46%
Basin Cocks	
No. 0 and 1, Fuller pattern	34%
Compression	23%
Quick opening	34%

Lead and Zinc Products Firm; Unsettled

LEAD AND ZINC PRODUCTS. — These commodities continue to rule at a firm and somewhat unsteady price, although the basic metals are of a fluctuating nature. The demand is said to be very good for this season of the year and a good volume of business is being looked forward to for at least the first half of the present year. The following are the quotations:

Lead pipe, list, per lb.	0 15
Lead waste pipe, list, per lb.	0 16
Do., over 8 inches, list, per lb.	0 17
Above subject to discount of 10%	
Lead traps and bends	add 10%
Lead wool, lb.	9 20
Lead sheets, 4 to 8 lbs., sq. ft., in rolls, lb.	0 14¼
Zinc sheets	0 19
Cut sheets ½c to ¾c extra, and cut sheets to size, 1c lb. extra.	

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Lavatory Wastes

Specially designed to fill the need for a Standing Lavatory Waste, the MUELLER pattern A2081 is rapidly making a name for itself with the trade.

Positive in action, nickel-plated with plating that stands the wear it is subjected to, the initial trial always means re-orders.

Standing Waste

A2081
Code—*Stawdee*

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

In addition, the MUELLER Pop-up Waste, adjustable and easily fitted to any lavatory designed for a Pop-up Waste, has also been considerable in demand.

H. MUELLER MFG. CO., LTD.
SARNIA CANADA

Send for our Canadian Catalogue A

Solder	Per lb.	
Guaranteed	....	0 42
Strictly	0 40	0 40
Commercial	0 37	0 37½
Wiuing	0 36¾	....
Wire	0 44¼	0 48

Scrap and Waste Materials Hold Firm

SCRAP AND WASTE MATERIALS.—The price remains very firm on these materials and are showing strong undercurrents. Higher prices all through the list would not be unlooked for.

The scarcity of waste paper, rags and like materials are said to be causing paper industries, etc., no little inconvenience, and manufacturers of products from these materials claim that the higher prices they are forced to charge are mainly due to this prevailing shortage and other factors.

The present quotations are as follows:

DEALERS' BUYING PRICES

Pipe scrap	....	11 00
Stove plate, per ton	....	18 50
No. 2 busheling	....	13 00
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 08
Scrap zinc	....	0 06½
Heavy copper	....	0 17
Wrought iron, No. 1, per gr. ton	....	15 00
No. 1 machinery cast	....	24 00
Heavy melting steel	....	15 00
Old rubbers, boots and shoes	....	0 06
Overshoes. lumbermen's rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 04
Heavy lead pipe	....	0 06

Iron and Steel Pipe Firm; Price Unchanged

WROUGHT PIPE.—A good demand is reported for pipe, both wrought and steel, and the situation is said to be a firm one. The skelp situation has shown little improvement and the scarcity is being felt. Manufacturers and jobbers are predicting large demands for the year, which are already beginning to be noted, and in their opinion one of the largest yearly turnovers of this commodity is looked for, providing the raw materials come forward in sufficient quantities to meet the demand.

The following are the present quotations:

WROUGHT PIPE

Price List No. 42, Dec. 9, 1919.

Standard Buttweld

	Steel		Gen. Wrot. Iron	
	Blk.	Gal.	Blk.	Gal.
	Per 100 feet			
⅛ in.	$6 00	$8 00	$....	$....
¼ in.	4 65	6 78	5 13	7 26
⅜ in.	4 65	6 78	5 13	7 26
½ in.	6 16	7 74	6 84	8 42
¾ in.	7 76	9 89	8 68	10 81
1 in.	11 48	14 62	12 84	15 98
1¼ in.	15 53	19 78	17 37	21 62
1½ in.	18 56	23 65	20 76	25 85
2 in.	24 98	31 82	27 94	34 78
2½ in.	39 49	50 31	.....	.....
3 in.	51 64	65 79	.....	.....
3½ in.	65 78	82 80	.....	.....
4 in.	77 94	98 10	.....	.....

Standard Lapweld

	Steel		Gen. Wrot. Iron	
	Blk.	Gal.	Blk.	Gal.
	Per 100 feet			
2 in.	$ 27 94	$ 34 78	$ 31 64	$ 38 11
2½ in.	40 66	51 48	46 51	57 33
3 in.	53 17	67 32	60 32	74 97
3½ in.	66 70	83 72	75 90	92 52
4 in.	79 03	99 19	89 93	110 09
4½ in.	88 00	113 00	114 00	138 00
5 in.	103 00	132 00	132 00	161 00
6 in.	133 00	171 00	172 00	209 00
7 in.	175 00	224 00	223 00	271 00
8L in	184 00	235 00	234 00	285 00
8 in.	212 00	271 00	269 00	328 00
9 in.	254 00	324 00	323 00	393 00
10L in.	235 00	301 00	299 00	365 00
10 in.	303 00	387 00	385 00	470 00

Terms, 2% 30 days, approved credit.
Freight equalized on Chatham, Guelph, Hamilton, London, Montreal, Toronto, Welland.

Darling in St. Louis Globe-Democrat

How do you suppose they are going to coax him away if everybody keeps on feeding him?

Ingot Metals Firm; Stocks Reported Light

INGOT METALS.—No changes are reported, although the present list is firmly held. Stocks are said to be light, and a fair amount of business is being offered. Every indication points to a big year, providing the stocks are available to turn over.

COPPER remains unchanged. A good demand is noted, the present price being quoted at 25 cents per pound, which is said to be a reasonable figure.

TIN is showing a good seasonable demand, although the price remains unchanged and is quoted at 73 cents per pound. Stocks are reported low.

SPELTER continues to remain unchanged at 12 cents per pound, with a limited demand offering.

LEAD shows no change in price, although recent figures have been of a fluctuating nature. The present quotation continues at 10½ cents per pound.

ANTIMONY.—A fair movement is noted on antimony, and the demand continues to be a fair one. The present price is 12 cents per pound.

ALUMINUM remains quiet, with low stocks reported; the price being quoted is 34 cents per pound.

Manager Wanted, for Canadian National Newspaper & Periodicals Association

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Apply in writing only, stating age, full details of experience, and salary expected. Applications will be treated as confidential.

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Injectors that offer 40 pounds more field. A reliable, trustworthy injector that sells as well as it operates. Morrison High Pressure Injectors operate successfully on 20 lbs. low to 220 lbs. high steam pressure, from 4 to 300 horse-power, and are made in sizes from ⅜ inch to 2 inch.

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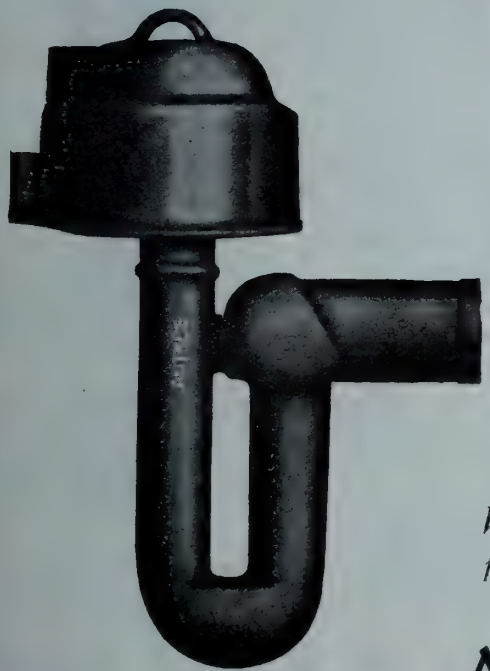

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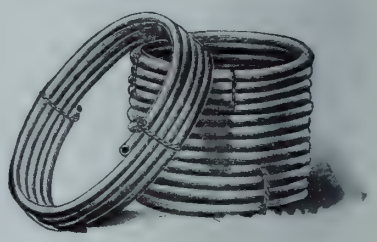

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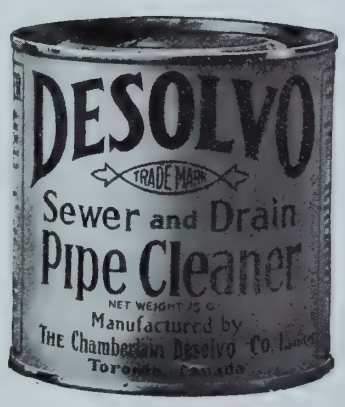

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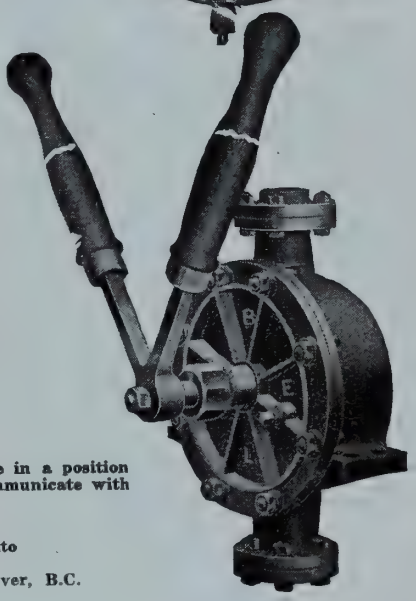

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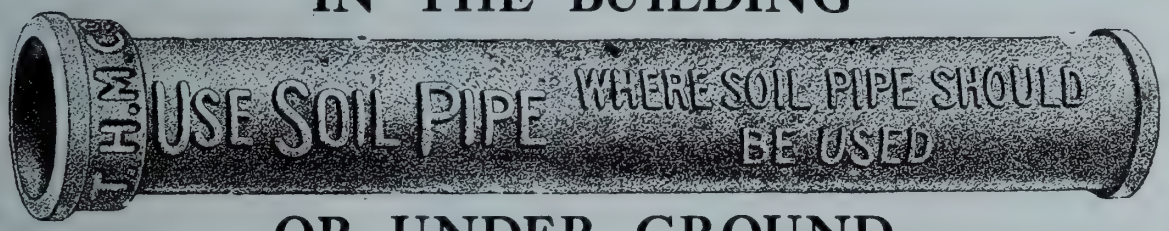

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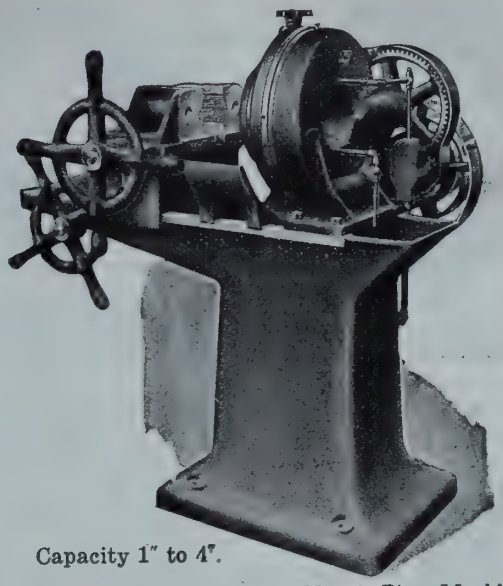

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Every sanitary engineer should possess this book. It deals with pipe making of all kinds, cast iron, wrought iron, steel, wood and tile pipe. It is valuable because it gives a true idea of how much service pipe should give under various conditions.

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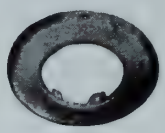

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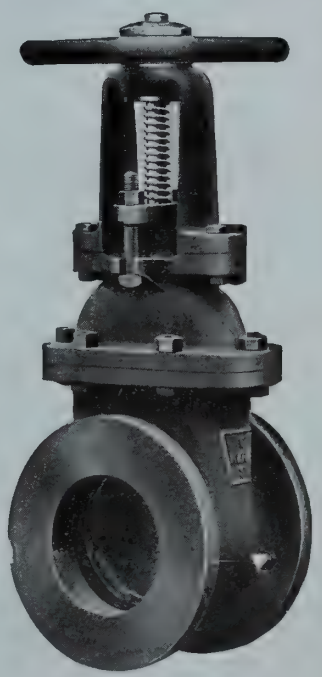

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Plumber and Steamfitter of Canada
VOL. XIV. PUBLICATION OFFICE, TORONTO, FEBRUARY 15, 1920 No. 4

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A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

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No. 246

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must be made of galvanized sheets. Nothing else will do.
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Soft and workable for forming, heavily coated for long life, naturally give best results

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(Look for Talk No. 247 next week)

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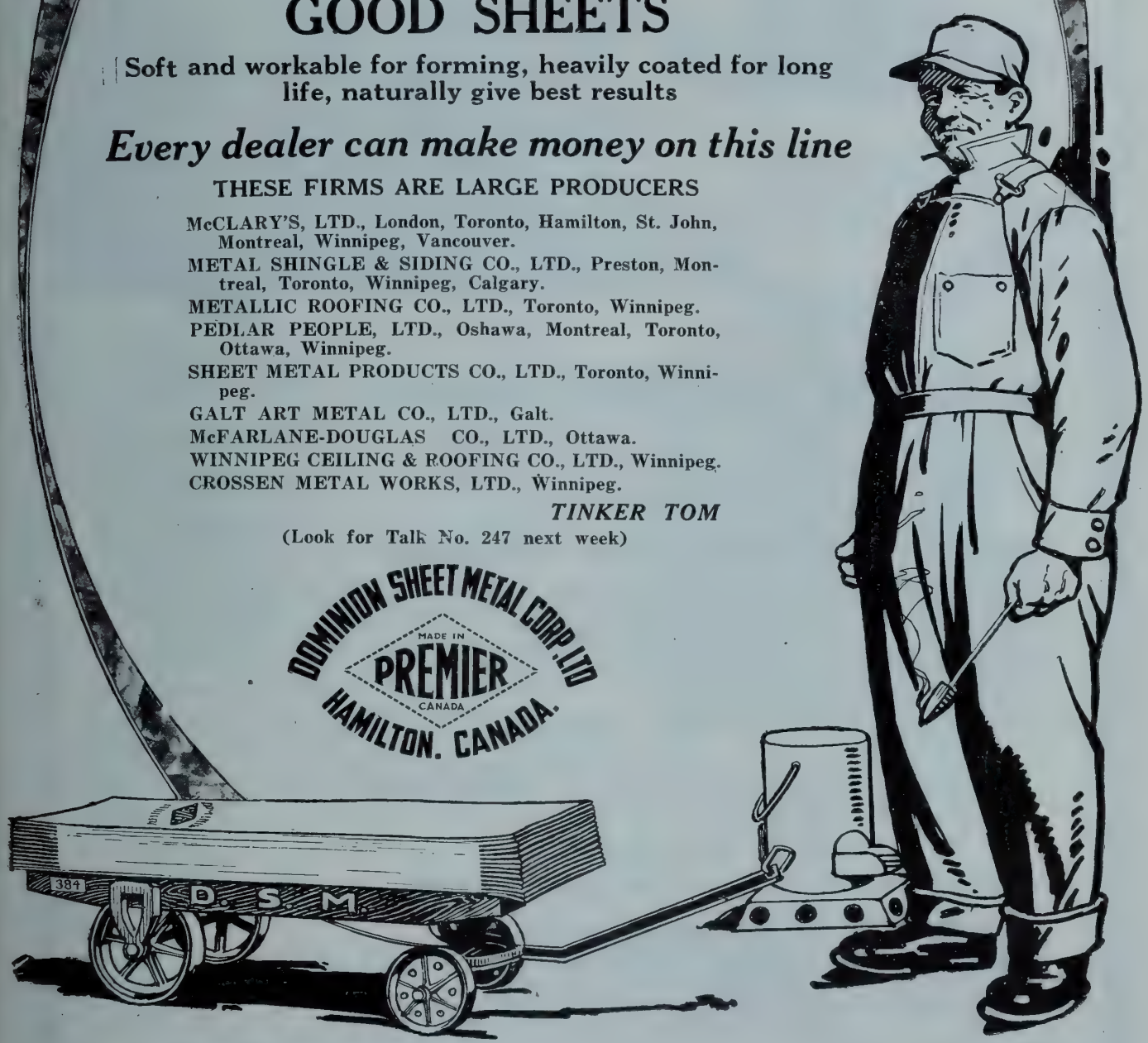

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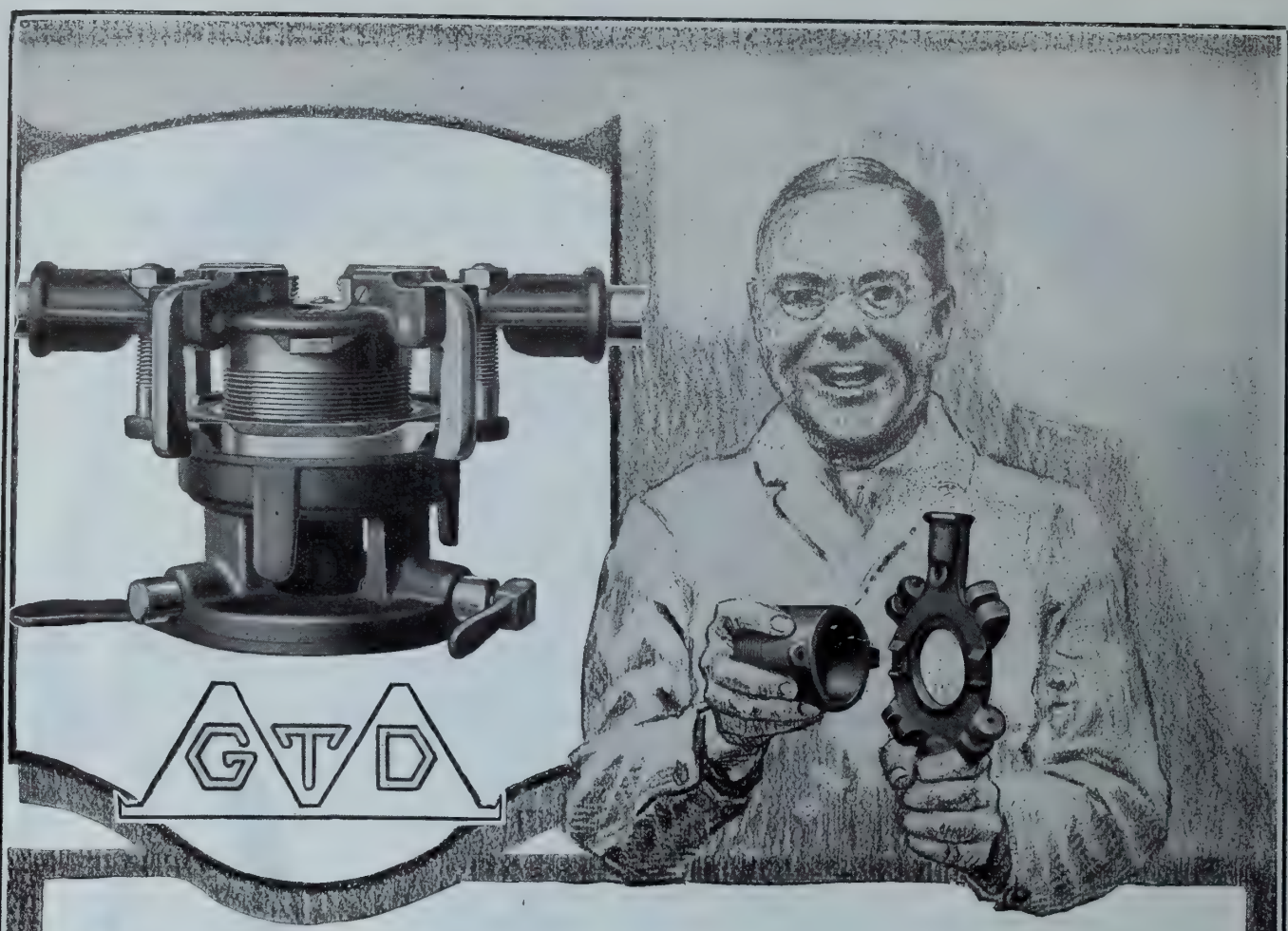

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"Folks tell us you can't teach an old dog new tricks and I've been a plumber for 25 years, but b'gosh I'm learning yet. Watch me put this new lead screw on to a

Greenfield Receding Pipe Threader

I've no need to buy a new tool when the lead screw wears
I just send for a new lead screw—And another thing
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No Unwinding on the Pipe or Off

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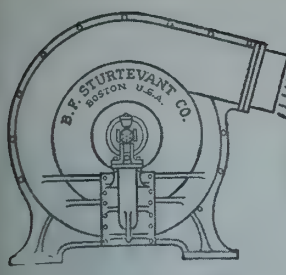

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Where reliability starts, worry stops. That is one of the chief functions we perform, to keep you, as a contractor, from worrying over what should have been done by the manufacturer before your work starts.

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(TRADE MARK)

HEATING AND VENTILATING SYSTEMS

are made to fit the job for which they are intended. One factory builds the complete apparatus from the sheet steel used in the fan to the motor which drives the fan. Every operation is executed with care, and the apparatus is erected and tested in our shop before it goes onto the freight cars.

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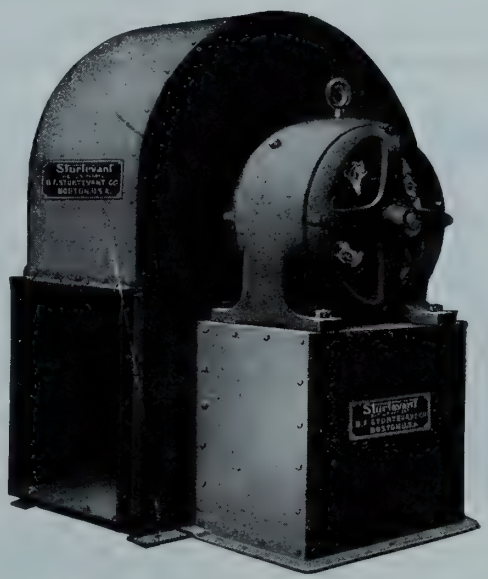
enables you to do your work promptly and finally. When you leave the job you have the assurance that it will not need any more of your time. These facts deserve your consideration because they mean dollars saved. Consult our nearest office; there are twenty-four in the United States and Canada.



Typical Sturtevant Heating and Ventilating Fan with Sturtevant Motor

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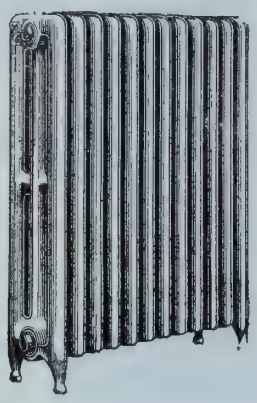

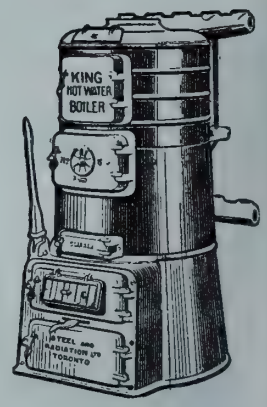

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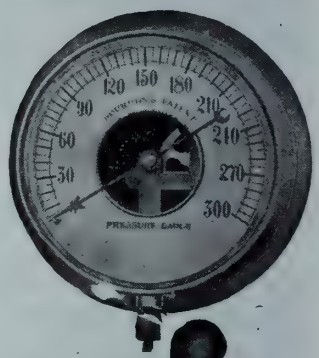

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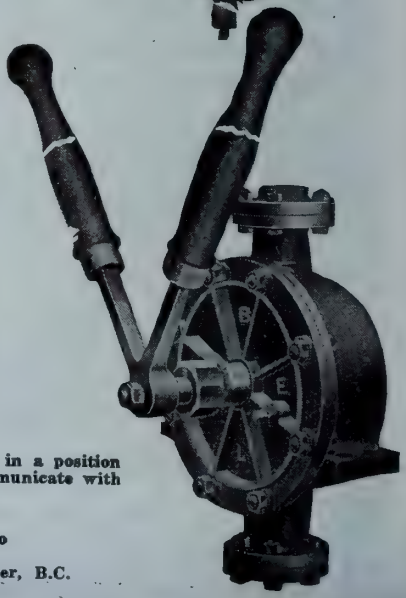

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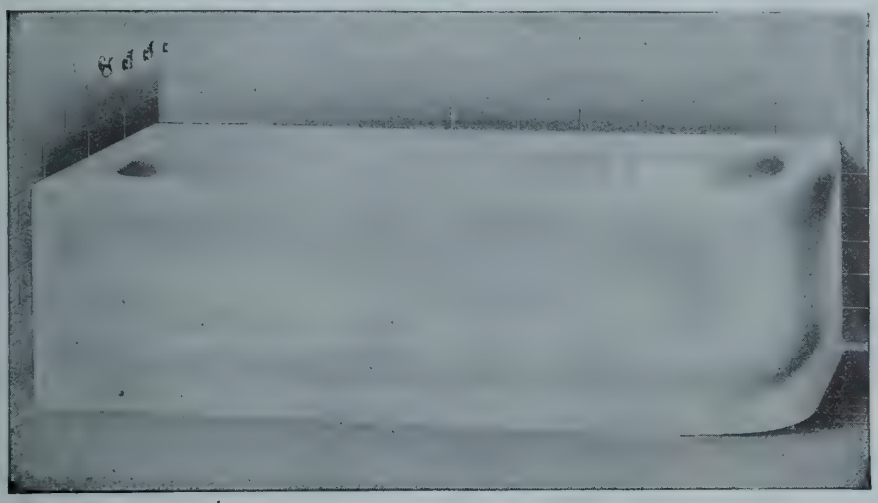
"Standard"
"Perfection" Built-in Baths

Made in One Piece Enamelled All Over



These Baths represent the last word in design and finish, and are made to build into Right or Left Hand Corner or into a Recess.

The "Perfection" Built-in-Bath is only 17½ inches high, therefore convenient. It builds into walls and floors, the absence of all dust-collecting cracks and corners meaning bathroom sanitation.

Made in 5 and 5½ foot sizes.

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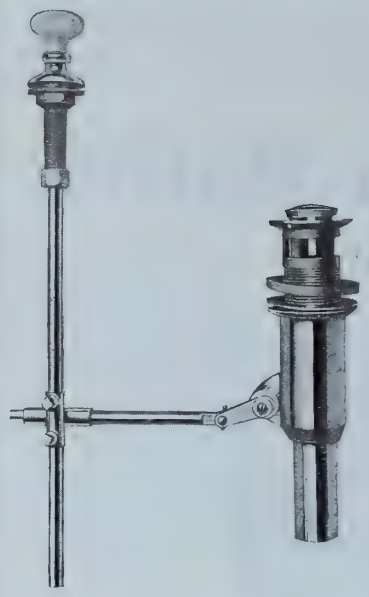

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DESCRIPTION

Allingham Pop Up Waste (Patented), Nickel-Plated, with China Waste Knob, indirect action (raising knob closes plug, lowering knob opens plug).

MEASUREMENTS

Diameter of flange under waste knob 1¾ inches. Diameter of flange inside hole 2⅛ inches. Diameter of flange below bowl 2⅜ inches. Outside diameter of outlet tube 1¼ inches.

The Allingham Waste is sanitary. The Waste Plug can be removed and cleaned without touching other parts. It is simple and mechanically correct. It is easily adjusted for friction or lift rod. It is reversible and can be easily changed from indirect to direct action if desired.

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Williams' Improved "Vulcan" Drop-Forged Chain Pipe Wrench

FEW tools are called upon to stand greater strain and harder wear than the pipe wrench. Because Williams' "Vulcan" Chain Pipe Wrenches have withstood every test during years of hard, continuous service under all conditions, they have earned a well-deserved reputation for dependability, and are favorably known the world over. They embody every good feature for which Williams' *Superior* quality stands.

Made in 8 sizes for ⅛ to 18 inch pipe. All Flat Link Chains are "proof-tested" on a standard tension machine and "certified." Every wrench is unconditionally guaranteed.

Ask forour descriptive Booklet of Pipe Tools

J. H. WILLIAMS & CO.
"The Wrench People"
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The A. G. Low Co., Ltd., 77 Pacific Ave., Saskatoon, Sask.
Agts. for Manitoba, Saskatchewan, Alberta and British Columbia.

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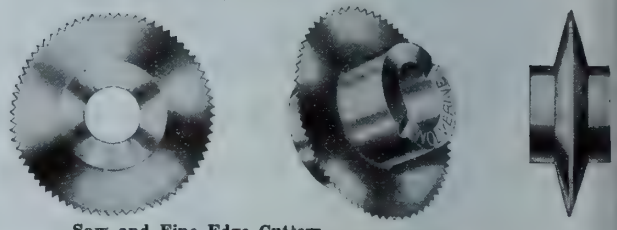

Saw and Fine Edge Cutters

There is a long, long line of Wolverine Products and a long, long rosy trail of profits for the dealer who handles them. For lack of space we can show but two here. See Wolverine Kantleak Floats, Wolverine Coil Furnaces, etc. Write for catalogue and discounts.

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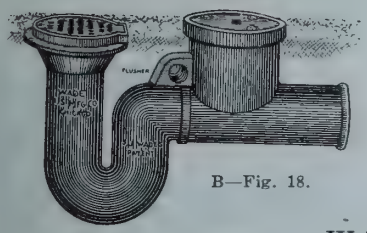


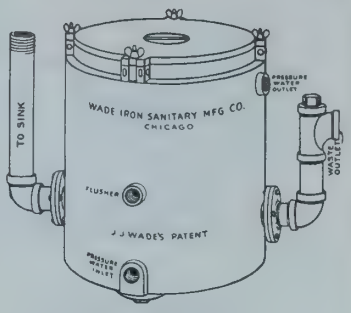
B—Fig. 18.

Wade Accessible Clean-out Drain Flushing Cesspool Back Water Gate Trap—Valve Combination.

Plan on Installing WADE Up-to-date FITTINGS in 1920

WADE Back Water Gate Valves and House Drainage, Sewer Flushing Fittings embody the latest improvements in design and construction.

They are approved by sanitary engineers and comply with health ordinances.



B—Fig. 27.
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks.

Wade Iron Sanitary Manufacturing Co. 551 W. Fulton St. CHICAGO

B—Fig. 126.
Wade accessible flushing cleanout floor wash and backwater valve combination.

B—Fig. 13.

Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.

Send for Catalogue.

B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?

Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE: 136 SIMCOE ST., TORONTO

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You are invited to become one of the Canadian Society of Domestic Sanitary and Heating Engineers.

Every man, firm and corporation engaged in the Plumbing and Heating business throughout the Dominion of Canada owes that duty to themselves first, and to their brother craftsmen second.

The need of an organization of this sort is so obvious that no great amount of argument should be necessary with a broad-minded man of business.

The need of Association has been proven and the existence of the Canadian Society justified in so many ways in the past, that every man of the Plumbing and Heating craft should see the necessity of supporting it, and should be proud to join it.

Commence a local organization at once, by getting in touch with your nearest competitor.

DO NOT HESITATE. DO IT NOW and put the weight of your influence and support with others, whose interests are similar to your own, by mailing your name or enquiring for further information to our Secretary.

ALL FOR ONE and ONE FOR ALL

Yours for co-operation,
FRANK R. MAXWELL,
President

Address all communications to
GARRETT F. FRANKLAND,
Secretary-Treasurer
Room 303, 22 College Street,
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THE CANADIAN JOHN WOOD MFG. CO., LIMITED

Grand Trunk Railway - Coxewell to Hillingdon Ave.

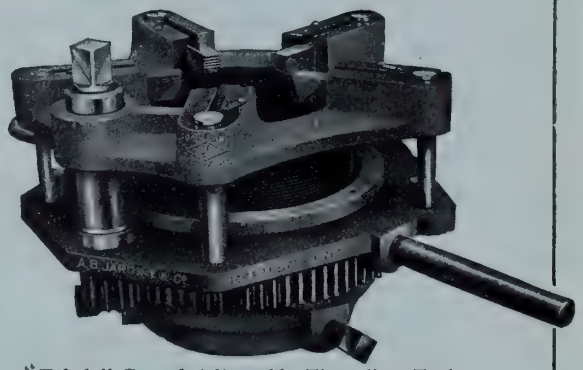
TORONTO, ONTARIO

MAKERS OF THE FAMOUS

Electric Weld Range Boiler

The Quality

JARDINE and TOLEDO PIPE THREADING TOOLS



"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2½ to 6 in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo have no cams or jim cracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

SEND FOR CATALOGUE

A. B. JARDINE & COMPANY, Ltd., HESPELER, ONT.

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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

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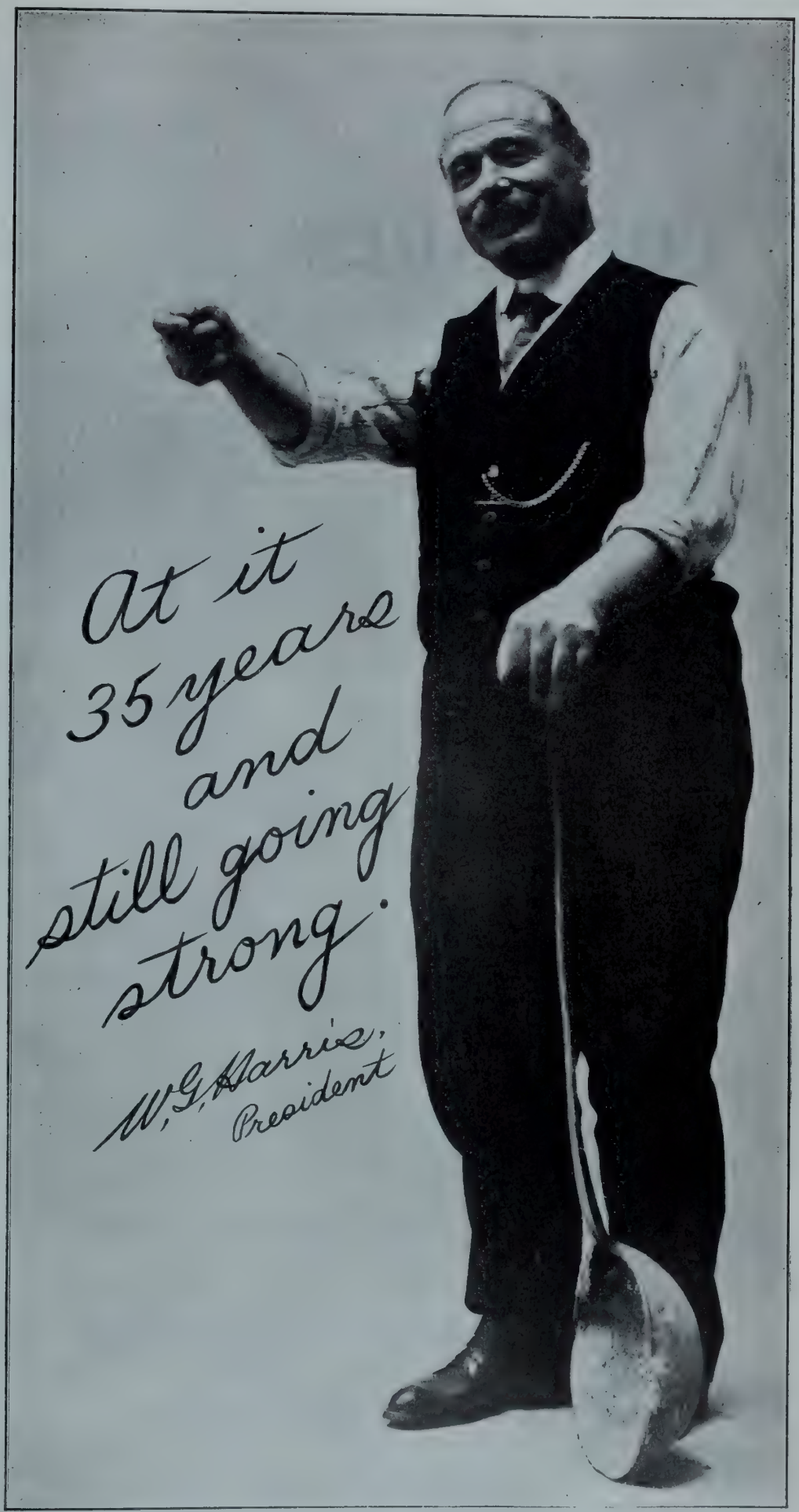

FORWARD!

A Little "Straight Talk to the Canadian Plumbing Trade

"THE FORWARD MOVEMENT" is just now enlisting the sympathy, energy and financial support of Canadian people who are earnestly desirous of advancing standards of religious and moral development to a higher and more stable position in our national life. It is a splendid concrete example of "practical idealism" worthy the co-operation of every member of our communities.

There is a splendid tendency noticeable in these days wherever business men gather together to voice a similar creed for business uplift and for the promotion of the highest principles in daily work and in trade endeavor. Surely we should all rejoice at such a development, not of sounding cant or empty preaching, but of practical, visible effort to better conditions.

In our own particular field we must agree that the possibilities in this direction are unlimited. With the steadily mounting prices for all supplies and labor there is a more insistent demand for the very best results. These results can be obtained only by close attention to detail, by giving the very best **"service"** obtainable, by following with particular care the rule that "quality" must mark our work, by being certain that "efficiency" is the keynote of our daily occupation.

The health and happiness of a very great proportion of our population depend very largely upon the successful efforts of Sanitary Engineers. Continuous association with the men who carry out this important work proves clearly that they are realizing more and more their important duty to those whom they serve. These men at the same time owe a high duty to their fellows in the craft and trade by observing the best principles of co-operation and mutual help and protection.

It must be clearly apparent that even the most mercenary motives should lead us to these high standards. If we can lift our ideals to a better plane we will find a FORWARD MOVEMENT in our business life which will bring to us the utmost satisfaction.

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Sanitary Engineer
Plumber and Steamfitter of Canada

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Vol. XIV. TORONTO, FEBRUARY 16, 1920 No. 4

Predicts Canadian Building Boom

It Will Take Canada Ten Years to Catch Up With Work That Accumulated During the War Period, Says President of Provincial Builders' and Supply Association —Matters of Interest to Sanitary Engineers Discussed at Convention

THAT it will take ten years for Canada to catch up with the accumulation of building and construction work which was held up during the war period, was the view expressed by President H. Elgie, in his address before the members of the Provincial Builders' and Supply Association, who recently held their annual meeting in Toronto.

He declared that builders and contractors need fear no shortage of work, but urged that everything possible should be done to try and stabilize the prices of materials, even if only for periods of a year, in order that there might be some degree of certainty for estimating.

BUILDING REGULATIONS

He also drew attention to the need for building regulations with a general application. In many of the towns and villages there were either no regulations at all or regulations which were badly in need of revision. In many places, he said, buildings are allowed which are a menace to human life. In other places many buildings are veritable fire traps. There was a great deal that the men in the trade, and also those selling building materials, could do if they worked together to improve conditions generally and make for betterment in the community.

HOLDS UP THE WORK

One of the most serious drawbacks to construction work last year was the lack of a working agreement between the men in the various building trades. The men in one section would make demands which would upset the men in half-a-dozen trades, and either greatly delay the work or prevent its going on at all.

Every effort is being made by the delegates to the convention to prevent anything of this sort occurring during the coming season as it is realized that it is bad for business all around.

SECRETARY'S VIEWS

"Until we can get labor as an incorporated body under the Government we cannot hold them to anything," was the view expressed by Secretary John Wright, of London, Ont.

President Elgie, of Toronto, endorsed the industrial council plan, declaring that it had worked out well in Toronto. He also instanced the case of Indianapolis, where, he said, the contractors and their employees co-operated so well that the one protected the other. There a wage agreement had been lived up to faithfully, while the contractors, in recognition of altered conditions, had granted an increase of their own accord.

UNSETTLED CONDITIONS

The general attitude taken by those who entered into the discussion was not an opposition to the employees securing the wages, but to the unsettling of the whole situation caused by counter-bidding between contractors for workers. It was claimed that as a result it was impossible to prepare anything like definite estimates on work, and serious delays were caused in construction owing to sudden losses of workmen.

SEE MUCH BUILDING

In making their reports to the convention the delegates from every city spoke of exceedingly bright building prospects during the coming year. Practically without exception they reported the promise of a year of record activity in building.

In declaring that some stabilization of wages was absolutely necessary, Geo. Crain, Ottawa, stated that about half of the mechanics in Ottawa had left there last summer as a result of higher wages paid in the Western cities.

LOST THE CONTRACTS

As another instance, he said, Ottawa firms had failed to secure a certain large contract right in their own city which went to a Montreal concern simply because the latter was paying a wage scale of only 55 cents, while the Ottawa contractors paid 75 cents.

URGES CO-OPERATION

"After-the-war conditions," said Fred. Armstrong, of Toronto, who presided at the annual banquet, "finds us with a great need of housing accommodation and a shortage of building materials. The only remedy for this is for everyone to get together and each to do his part to allay as far as possible labor unrest and strikes."

Plumbing Shop at Ottawa Technical School is Proving a Splendid Success

Classes in Practical Instruction Are Well Attended and the Authorities Are Planning to Extend the Work

THREE years ago, at the request of the master plumbers of the city, a course was opened at Ottawa Technical School in plumbing, steamfitting and related subjects, membership being confined to apprentices and others actually in the trade. The success that has attended these classes and the great benefit they have been to the craftsmen here has led the Industrial Advisory Committee to make plumbing and steamfitting one of the main departments in the new shop building recently erected and now nearly ready for occupancy. It is intended to install a complete four-fixture domestic plumbing system for demonstration purposes, also hot water and steam heating systems, and the members of this year's classes have volunteered to set up the apparatus under supervision of their instructors and make all the necessary connections.

Manufacturers Help

Canadian manufacturers of special plumbing supplies and fixtures have been very much interested in the project and at the meeting of Industrial Advisory Committee last evening Principal Nichol announced that the following firms had donated the articles mentioned for instructional purposes, which, when assembled, will make a very complete model domestic service: Port Hope Sanitary Mfg. Co., Toronto, apron front lavatory basin; Thos. Davidson Mfg. Co., Montreal, 30-gallon range boiler and stand; Jas. Morrison Brass Mfg. Co., Montreal, stack gas water heater, automatic cellar drainer; Canada Pipe & Steel Co. and Galt Brass Co., Ltd., galvanized complete combination outfit; Canadian Asbestos Co., Montreal, asbestos products; Thos. Robertson Co., Ltd., Montreal, Canadian Brass Co., Galt; Wallaceburg Brass & Iron Mfg. Co., full sets of fixtures and connections.

Attendance is Good

All the committees report that good progress is being made and that several new departments will be opened at an early date.

The principal reported an evening enrolment in various classes of 2,900, and that the attendance at the day classes was very nearly 90 per cent., showing that the interest taken in this course of education in Ottawa is very great.

Will Not Appeal Against Order of Provincial Health Board

Peterborough Board of Works Takes Definite Step for Installation of a Sewage Disposal Plant

PETERBOROUGH, Ont.—The Board of Works has decided to bow to the inevitable and install an activated sludge sewage disposal plant as practically ordered by the Provincial Board of Health, whose decision in this respect is endorsed by the Railways Board.

The city has till March 1 to submit to the Provincial Board of Health plans for Engineer Parsons was instructed to go ahead and complete his plans for this plant already started.

Went Before Board

Engineer Parsons, Ald. Phelan, and City Solicitor Widdifield appeared before both the Provincial Board last December, when their proposal for an Imhoff tank system, which the engineer considers especially suitable for local conditions, was emphatically rejected.

Engineer Parsons admits that the sludge from an activated process is purer than that from Imhoff tanks, but its disposal is a costly and complex question. Then the activated sludge system is more costly in its operation than the Imhoff method. In illustration of this point, Engineer Parsons declared it would cost considerable money every year to pump air for the activated process, which, in addition, would also require the services of high-priced mechanics.

Says Not Obsolete

Engineer Parsons quoted many important centres in the United States using, adding and enlarging Imhoff tank sewage disposal systems in spite of the Provincial Board of Health's contention that this method is obsolete. He also contended that the activated sludge process is yet in more or less of an experimental stage, especially in regard to disposal of the sludge, which is of a jelly-like substance with a top layer of slush, a centre layer of water, and a bottom of grease. Consequently, drying this sludge on gravel beds is a long and difficult process, the sun not gaining ready access to the water to assure quick evaporation.

Would Kill Crops

This sludge would not be acceptable for cultivation when dried out by open-air exposure, as the large percentage of grease contained therein would cake some soils and kill crops. The only way to use this sludge would be to commercialize it, and Peterborough is not large enough to warrant such a course.

Ald. Hamilton was strong for appealing against the Provincial Board's order, but Mr. Parsons did not consider such a course in Peterborough's best interests.

This activated sludge system of sewage disposal will cost the city at least $170,000 to install, apart from land costs.

Planning Tenements In Workers' Houses

MONTREAL.—Included in the draft of suggestions the Administrative Commission is submitting to the Legislature as amendments to the Act passed at the last session, in connection with the federal grant for the construction of workmen's dwellings, is one by which the Corporation of Montreal desires to empower a workman to build a dwelling containing one, two or three separate tenements. According to information already given out at City Hall the object of this is to provide the borrower with a rental income which would help to repay the sum lent to him by the Governmetn. It is stated that rigid inspection in connection with any work of this kind will be made to see that all sanitary requirements are lived up to.

Conditions Excellent In City Of Quebec

Expenditures of considerable sums are projected in Quebec City and various extensive building programmes, SANITARY ENGINEER understands, are mapped out. In speaking with a prominent business man in the historic capital, he stated that in one location alone an expenditure of from $300,000 to $400,000 for a modern property would be shortly undertaken. As there is much prospect of extensive building being carried out in other parts of the city, the figures will total very high in a short time. It looks as though several million dollars' worth of building will be under way as soon as weather conditions permit. This development is eagerly awaited by the hardware and plumbing trade as well as by building contractors generally. Conditions in the city have been excellent during the winter and the outlook is very promising at this time. One of the greatest difficulties is that of obtaining requisite material.

H. J. Halford Goes On Health Council

Ottawa.—H. J. Halford of Hamilton, vice-president of the Trades and Labor Congress of Canada, has been appointed a member of the Dominion Council of Health. Mr. Halford succeeds Hon. W. R. Rollo, who resigned from the council on his appointment as Minister of Labor and Health for the Province of Ontario.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

IN beginning the series of practical articles on "Sewage Disposal For Small Communities" SANITARY ENGINEER would direct the attention of the men in the trade to the practical treatment of everyday problems which will be given.

Every effort has been made to present these questions in simple, easily understood language and to make clear a number of points which are consistent with good practice.

The series is one of the most valuable that has ever been presented to the sanitary and heating engineers in the Dominion, and it will be well worth keeping for reference and for study.

A large number of illustrations have been prepared and the articles will be illustrated fully.

Preface

In view of the increased attention being given to all subjects appertaining to public health the author has compiled this small text-book describing the many successful methods that are being and have been adopted for treating and disposing of sewage from small communities, thus filling a long standing want of Sanitary Engineers, Architects, Builders and Farmers for a reference book explaining the design of small modern sewage installations for the removal of foul water waste on the best sanitary grounds and with the least nuisance.

Many good text-books have been written on the sewage treatment of large cities and towns and enormous expenditures are being made by progressive cities to protect the health of their people, and similar protection is surely due to the country residents and with the growing practice of erecting large mansions and institutions away from the smoky atmospheres, the Architect or Owner is generally called upon to instal a small private disposal plant to take care of the foul water, so this work has been carefully compiled and fully illustrated to help them in this important and necessary branch of house construction.

Whilst the book treats the purification of sewage on a small scale, it is not intended to cover the sewage disposal of large towns and cities, which will be treated fully in the author's new edition of sewage disposal works for large cities and towns.

Chapter I

The question of sewage disposal in small communities, in which are included country houses, mansions, isolated institutions, hospitals, asylums, prisons, railway stations, villages and small towns, is one of considerable importance and one must carefully consider first of all the best system to adopt, having in view local conditions of disposing of the sewage from these buildings without injury to public health, nuisance, pollution of rivers and water supplies, with the maximum convenience.

The composition of sewage from such places is what the engineer terms "domestic sewage" and consists of human excrement from w.c's., waste water from kitchens and wash houses, chamber slops and drainage from stables.

Is Different

The treatment of sewage from private houses is different to that from large cities owing to the fact of more perfect system of drains and complete separation of storm water and frequently the restricted water supply. Then again the small distance generally traversed discharges the sewage into a fresh state on the disposal works, there being no comminution or resolution of solids, the character of various discharges being recognized on arrival at the works.

Sewage from private houses is generally more difficult to treat than that of a large town, The Engineer, instead of providing for a constant flow of partially prepared dilute sewage of comparatively uniform composition, must deal with interrupted series of discharges of filth of the most varied nature in the crudest and most concentrated condition, arriving at most irregular intervals. Therefore, it is necessary to calculate and design your works to meet these requirements.

Very Troublesome

The small area under control, limited funds and the common absence of any proper outlet, render the economical solution of the house disposal scheme very troublesome and although the treatment of sewage for large cities has progressed considerably during the last few years, sufficient attention has not been given to the design and construction of small installations, for, whilst many important details obtained from the many valuable and systematic investigations of treating sewage of large centres of population hold good in small communities, difficulties and much disappointment have resulted from inconsiderate transfer of methods from one to the other as the composition of the sewage varies, considerably due to trade waste, water supply and diluted form of sewage as it arrives at the works.

Bacterial Method

The evolution of bacterial method of sewage disposal has been the means of employing artificial filters in place of land treatment, thus facilitating the purification of sewage on small areas and allowing a greater area of grounds being utilized for other purposes and eliminating the unsightly appearance and smell nuisance by locating same on a convenient and ideal location. The ultimate aim of sewage disposal is to separate the organic matters from the water in the sewage in which they are suspended and dissolved in order to make same, by oxidation and decomposition, inocuous and so render the sewage comparatively pure in order to allow same being discharged into streams, rivers, etc., without pollution.

Living Organisms

Sewage purification is largely brought about by the action of living organisms which feed upon the waste products of animal vegetable life undergoing decomposition, thus splitting their constituent elements, producing fresh chemical combinations.

In every kind of disposal works manual, attention is required which means expense, but on small installations the object of the designer of the work should be to instal wherever possible, reliable, automatic apparatus in order that the sewage can be treated as efficiently as possible, bearing in mind the requirements of sanitation in order to meet the high standard of purification required.

Regularity Essential

In order to accomplish this, especially when the flow is intermittent, including day and night discharges, regularity is absolutely essential, hence the demand for modern and reliable automatic apparatus which reduces considerably the maintenance cost, but at the same time partial supervision and attention must be given to all apparatus for the successful working of a modern small installation.

Distinct Processes

Sewage purification undergoes two distinct processes classed under the headings of Clarification and Oxidation. The former is brought about by the treating of same in various sedimentation tanks, which is equivalent to straining, and thus reduces the solid suspended matter which settles in the tanks in the form of sludge, whilst the dissolved impurities and matter in suspension are purified by the process of oxidation in the interstices of the soil or on artificially constructed filters.

The Second Process

The second process, of Oxidation, is absolutely essential, otherwise secondary putrefaction takes place in the clarified effluent which still contains approximately 50 per cent. of the sewage impurities owing to the organic matter retained in solution and in time will become very offensive.

The Clarification process consists of screening, sedimentation, precipitation and

liquefying, which are successfully accomplished in well-designed tanks, whilst the Oxidation process consists of land filtration and artificial filter beds which will be fully explained and illustrated later in this book.

How They Work

Living organisms, known as anaerobic and aerobic bacteria, produce the purification of sewage in both stages of process respectively by destroying certain substances and liberating others which produce the chemical changes of rendering sewage into a comparatively pure and harmless state. The anaerobic bacteria produces purefaction, releasing offensive gases and live without air and light, living in all sedimentation tanks whilst the aerobic produce oxidation and must be supplied with a plentiful supply of air and light and exist and thrive by the millions in well-constructed filtration areas. The process of sewage disposal is partly mechanical and partly bacterial, consisting of straining or screening, tank treatment, final filtration and chlorination.

Screening Process

Screening consists of intercepting and removing rags, floating garbage, sticks, etc., by passing sewage through coarse or fine screens which remove the heavy suspended matter at the same time not hindering purification. Sewage passing through tanks in small installations may remain from 18 to 24 hours entirely at rest; the solid syspended matter settles out in such a tank and, according to experiments, is partially liquefied, deodorized and destroyed by countless numbers of bacteria which thrive and live without air: To assist in producing anaerobic bacterial life, a thick scum generally is formed on the surface of the sewage in tanks, protecting the bacteria from light and air and at the same time, to some extent, preventing the free exit of foul smells.

Clarified Sewage

Sewage after passing through the tanks is termed clarified sewage and is far from being pure, and then passes through its final stage of purification by surface irrigation, land filtration, artificial contact or percolating filter beds.

Sewage problems, however small, cannot be designed for efficient results without careful thought and good planning and every scheme should be treated separately as everything depends upon local conditions—such as the composition and volume of sewage to be treated, fall and space available, and the configuration of grounds, nature of soil and destination of the final effluent.

Selecting the Site

In selecting the site not only the character, area and level of the land for filtration purposes should be considered, but also proximity of suitable effluent outlet, also the liability of flooding and water logged in wet weather and, lastly, placing same in such a location so as not to be unsightly to houses, causing smells, flies and other obnoxious objections which may crop up and can be easily remedied if sufficient care and thought are given in laying out the grounds of the different houses.

Obtaining Volume

The volume of sewage to be treated can be approximately obtained from the gallons per capita used in the houses from which the sewage is to be treated, but if the storm water, that is, rain water, collected from roofs, backyards, etc., finds it way into the sewers to the disposal works, then sufficient capacity must be designed for in the tanks and filtration area to take care of this increased flow, which can only be obtained from the records kept of the daily rainfall sheets for that particular district. As local conditions vary considerably it must be left in the hands of a capable man who designs the scheme to use his own discretion after studying the local conditions.

Dry Weather Flow

In large disposal works three times the dry weather flow must be treated fully as crude sewage, whilst three additional volumes on stormwater beds or land without tank treatment, but anything over six times the dry weather flow can be passed direct into the effluent conduit. Sewage flow may be measured with sufficient accuracy by passing sewage over rectangular notches, providing that the exact width and depth can be easily taken, so that the discharge can be computed from any well-known hydraulic formula by this method, not only the mean dry weather flow can be obtained but the maximum flow during excessive storms.

A Simple Method

Another simple method of obtaining the actual flow, either minimum, mean or maximum, is by observing the actual time it takes to fill a tank of known size, such observation being done systematically at regular intervals, then the various flows can be so calculated.

If rainwater is rigidly excluded from the sewage no need exists for gauging etc., as the sewage discharge can be readily obtained from the water supply, sufficiently accurate for working purposes, but it is a great advantage to lead same to the filters, as the first washing from paved yards and roofs, especially after a drought, is just as impure as sewage and it is dangerous to discharge it into the nearest water course.

Small Catch Pit

If the works are designed for a large institution and part of the rainwater finds its way to the disposal works, it is always advisable that a small catch pit or detritus tank with screen should precede the sedimentation tanks and filters, as the stormwater collects from the surface a mineral grit which silts up the tanks and filters with irresolvable mineral matter and thus preventing the best results being obtained from the works.

Final Treatment

The final treatment of the clarified tank effluent on small installations is generally successfully accomplished by surface irrigation or land filtration by means of under drainage and should be successfully worked, otherwise by continuous sewage treatment the land becomes sewage sick and thus purification is retarded so all filtration areas should be periodically rested to allow the aerobic bacteria to obtain an ample supply of oxygen by well aerating the soil. Artificial filters, where the land is not available or suitable, can be substituted with excellent results and will be fully described in the chapter on Filtration.

THE WAY TO BRING IT DOWN

St. Louis "Star."

And the Board of Commerce might help "Everybody" by telling how to handle the weapon.

Pressure Systems Offer Opportunities

Fifty-Three Per Cent. of the Women in the Rural Districts by Actual Official Figures Asked for Running Water in Their Homes—Very Few Know That This May be Obtained at Prices Within Reach of All

NOT long ago the following question was sent out to several thousand farmers' wives in all parts of the country by the Department of Agriculture of the United States.

"What one change or improvement would be of the greatest benefit to your home, or which would you rather have?"

When one considers the really large list of devices of one kind and the other on the market for women to make a selection from, the replies received are strikingly significant.

No less than fifty-three per cent. of the women indicated that they would prefer the installation of some system by which they could have running water in their homes to any other improvement.

A Wonderful Opportunity

Just think of it, one woman out of every two desires above all else an ample supply of running water for the house. This offers a wonderful opportunity for the sanitary and heating engineer.

A remarkably small percentage of these women, probably not more than one or two out of every hundred, have any idea that by the installation of a water pressure system they can obtain at a moderate cost the convenience for which they are longing.

Bringing pressure systems to the attention of these women, showing them what the systems will do, how easily they are installed, and how small is the upkeep, will mean business for the sanitary and heating engineer who goes after it.

Business is There

The business is there. It is only waiting a little sales talk and demonstration to be closed. Some of the men in the trade who have been giving the installation of pressure systems a little attention have been getting results that were not only surprising but satisfactory.

"My experience in the country districts was that the farmer's wife is the best one to take the matter up with first," said one sanitary engineer. "She knows what she wants, but very, very few of the women know that they can get what they want at a price that is within the reach of all. Once they understand this and know that the system costs little for maintenance they never rest until they have prevailed upon their husbands to instal a system. If left to themselves, the men, from my experience, would keep putting the matter off. It is the women who generally inaugurate the campaign to secure equipment of this kind in the home and who see the thing through. The men are easy to "sell" on the proposition once they have been talked to by their wives, and are convinced that the women want it and that it will be a real help to them in their everyday work."

Too Much Hardship

When one realizes the conditions under which thousands of farmers' wives are working every day, especially in weather such as has prevailed recently, it is easy to understand their desire for improvement. One of the things she needs a hundred times a day in her work is water. Water for cooking, for cleaning, and for a dozen other purposes. And yet every time she wants it she either has to go herself or coax her husband or some member of the family to go—

Out through the snow to a pump that may be working or may not, or a well, or as is often the case, to a spring.

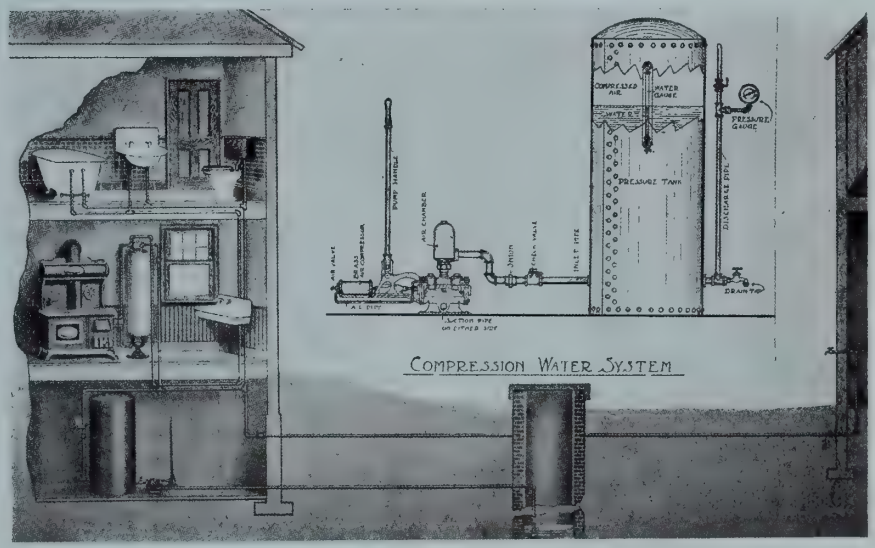
Whoever goes can only carry at the most two pails full, not a very generous supply, and one that is soon used up, and then another trip.

A Big Day's Work

"The cooking of three meals a day on a meagre allowance of water will necessitate ten buckets, which will make for cooking alone 1,200 pounds of lifting per day. When to this is added the water necessary for bathing, for scrubbing, and for the family washing, it will easily bring the lift per day up to a ton, and the lifting of a ton a day will take the elasticity out of a woman's step, the bloom out of her cheeks, and the enjoyment out of her soul."

Is It Any Wonder?

Is it any wonder that the thousands of women who are facing conditions of this kind every day are anxious to get away from them and will welcome any improvement? The great majority of these women are the wives of well-to-do farmers. They are ready and willing



The illustration shows a simply arranged pressure system for a farm home.

Just What it Means

A prominent engineer who made a careful investigation into the matter of water supply in the rural districts is responsible for the astonishing statement that many farmers' wives are lifting at least a ton of water a day. In his report he says in part:

"The getting of the water from the source of supply to the point of application requires more manual labor than any other item of housekeeping. The water for the kitchen has to be lifted from the well, carried to the kitchen, poured into a kettle, poured out of the kettle into the dishpan, and from the dishpan out of doors. This makes six times that the water is handled, and a bucket of water containing two gallons, with the containing vessel will weigh twenty pounds. When this is handled six times the total lifting is 120 pounds.

to spend the money, but do not know that water pressure systems are the solution.

A little campaign of education on the part of the sanitary and heating engineers will produce big results. Once half a dozen of the pressure systems are installed and are in operation they will advertise themselves and will be one of the best talking points the sanitary engineer can have to refer to.

Other Considerations

It is not only the women who will benefit by their installation but the whole household. "Plenty of water for everyone" means general satisfaction, especially when it is fresh, running water.

Put the facts before the people in your territory and cash in on the opportunities which exist on every hand. The business is there and it is a profitable

trade that offers endless possibilities for development.

In England Also

In connection with what has been stated above, it is of importance to note that the Women's Housing Subcommittee, which is working with the Government in England in plans to provide proper housing accommodation, especially in the rural districts, has stated emphatically in its report "that an improvement in the water supply of country districts is a matter of national urgency."

Mrs. C. S. Peel, one of the most active workers, says: "I have been collecting letters from women, and they all demand, before everything else, running water in every home."

Working Agreement Is Needed Between Various Sections of the Building Trades

Lack of Co-operation Threatens to Hold Up Some of the Construction Work That Is Planned For 1920—Are Business Agents To Blame?

ONE of the chief necessities in the building situation for 1920 will be the working together of the various sections of the building trades. Efforts have been made in some of the larger centres to arrange a working agreement. In taking this step it is essential that all parties to it cooperate. Lack of co-operation in 1919 was responsible for thousands of dollars' worth of building being held up because prospective builders were uncertain if they commenced when they would get finished. In some places the demands of the carpenters were not in harmony with those of other trades. In other places it was the bricklayers whose schedules caused the trouble. The result was that many of the men had to go outside of their own cities to work because the work that had been planned did not proceed.

Still Same Trouble

That the same trouble still exists is recognized by many of the men in the trades and they realize that it is detrimental to business generally.

Discussing the situation in Toronto the "Telegram" says editorially:

Some of the employees of the building trades are becoming disgusted with the attitude of some of their business agents of trade unions who are apparently anxious to have their names in the paper preaching about agreements, but when it comes to real action "they are not there."

"They have always some excuse for not signing when it comes to a showdown." One of the employers said today: "I feel like advising our section to do nothing until the labor men agree among themselves and then we will be prepared to sign anything so that we might proceed with the work."

"It would seem," said another employer, "that this business agent man is afraid his occupation would be gone when an agreement is reached, and he is evidently a believer in safety first for himself."

"The latest phase of the situation in the building trade, according to the morning papers, is that the bosses are to blame for not reaching an agreement, and I want to say," said one contractor, "that this is not true."

"For weeks there has been talk about the joint Industrial Council adjusting matters, but now there appears to be a difference between the bricklayers' business agent and the business agent of the electrical workers. Secretary John Collam, of the carpenters, is alleged to have said that 'it is more difficult to organize some of these contracts than it is to get men into the labor movement.'"

"If there is to be peace in the family," said Mr. Collam, "they must act and work faster, or our members may instruct us to cut away from the combination altogether."

Representatives of the Plumbers and Steamfitters' Union state that representatives of this section of the exchange and architects whom they had met some days ago were under the impression that one of the chief objects of the recommendation of the Industrial Council was to bring employers and men together frequently. They were prepared to sign an agreement in 1921. With plenty of work in sight and a shortage of mechanics, the plumbers were indifferent regarding the agreement. John Vick, business agent of the Bricklayers' Union, expected to sign an agreement within a short time.

Jimmie Gunn in It

Business Agent James T. Gunn, of the Electrical Workers' Union, said: "At the last meeting employers were prepared to fall in with my proposal that a blanket agreement for the entire industry be negotiated by a body representing the employers and another the unions," said Mr. Gunn. "Mr. John Vick wouldn't support the suggestion. Mr. Vick had a perfect right to oppose it as a craft unionist of the American Federation of Labor."

The structural steel workers have a grievance. They complain of the attitude of employers in refusing recognition of their organization, and insist that the older organizations of the trade secure this right before negotiations are concluded.

Retail Association Urges Its Members to Keep Accurate Accounts

THE officers of the Brooklyn Retail Merchants' Association, in an effort to induce more accurate accounting methods among the members, are sending them the following "14 Points," with the request that they be followed:

First—Charge interest on the net amount of your total investment at the beginning of your business year, exclusive of real estate.

Second—Charge rental on real estate or buildings owned by you and used in your business at a rate equal to that which you would receive if renting or leasing it to others.

Third—Charge, in addition to what you pay for hired help, an amount equal to what your services would be worth to others; also treat in like manner the services of any member of your family employed in the business not on the regular payroll.

Fourth—Charge depreciation on all goods carried over on which you may have to make a less price because of the change in the style, damage, or any other cause.

Fifth—Charge depreciation on buildings, tools, fixtures, or anything else suffering from age or wear and tear.

Sixth—Charge amounts donated or subscriptions paid.

Seventh—Charge all fixed expense, such as taxes, insurance, water, lights, fuel, etc.

Eighth — Charge all incidental expenses, such as drayage, postage, office supplies, delivery expense of horses and wagons, telegrams and telephones, advertising, canvassing, etc.

Ninth—Charge losses of every character, including goods stolen or sent out and not charged, allowance made all customers, all debts, etc.

Tenth—Charge collection expense not enumerated above.

Eleventh—When you have ascertained what the sum of all the foregoing items amount to, prove it by your books, and you will have your total expense for the year.

Twelfth—Divide this figure by the total of your sales, and it will show you the per cent. which it has cost you to do business.

Thirteenth—Take this per cent. and deduct it from the price of any article you have sold, then subtract from the remainder and what it cost you (invoice price and freight), and the result will show your net profit or loss on the article.

Fourteenth — Go over the selling prices of the various articles you handle and see where you stand as to profits, then get busy in putting your selling figures on a profitable basis, and talk it over with your competitor as well.

The Salesman Must { Be Well Groomed / Have a Good Vocabulary / Be Well Developed

Necessity of Concentrating Upon Outstanding Advantages of Merchandise Was Emphasized by Frank E. Fehlman, of New York, in Addressing Montreal Publicity Association on "Retail Salesmanship"—Appearance and Address Two Big Essentials.

WHAT proved to be a most illuminating address on "Retail Salesmanship" was delivered in Montreal last week before the Montreal Publicity Association by Frank E. Fehlman, of New York. Mr. Fehlman has been connected with some important firms, in which he has had the direction of their sales policies. Taking as his subject "Advertising Through the Retail Salesman," the speaker proceeded to deal effectively with various phases of retail selling, and brought some exceedingly strong arguments to bear on this very important question.

Mr. Fehlman referred, at the outset, to a School of Salesmanship which he had developed while connected with the Gossard Corset Company. As a result of the training extended to salesladies, and of which they turned out between eight and nine thousand, these women were able to dispose of several pairs of corsets to customers when they came in with the avowed intention of purchasing only one pair. In many cases, they had sold three, and even four, pairs of corsets, simply by knowing their business thoroughly and the use made of corsets. The speaker pointed out that this success in selling more than the customer asked for depended very largely upon what the saleslady knew.

"People rise just as high as their intelligence will take them. If you teach them right, they will do wonders. The clerk or salesman is successful just to that extent to which they are educated by the sales director," he pointed out.

Made Use of Charts

Mr. Fehlman made extensive use of various charts, which were simple but right to the point. The first of these was very interesting, in that it treated of the mentality of a prospective customer. Through investigation and extensive tests, the mind of the average individual develops gradually until noon. At noon, or the usual luncheon hour, the mental faculties are reduced again, and then gradually work up until three or four o'clock in the afternoon. Finally, by 10 p.m., they are at a low ebb.

The reason people do not go shopping until ten or eleven o'clock in the morning, is because they are mentally lazy. The logical time, therefore, to treat with a customer is when the mental faculties are at their best, as above outlined. As opposed to this, a customer coming in at 3 or 4 o'clock in the afternoon is likely to be in anything but a good frame of mind for selling. Not only so, but the salesman or saleswoman, who has been in all day, has probably retrograded by the middle of the afternoon, and it is the salesman who steps out for a few minutes, takes in a good lot of fresh air, comes back refreshed, dusts his shoes, washes his face and hands, and is then ready to meet customers for the next two or three hours, who makes a success.

This point was illustrated by the speaker in referring to a customer coming in to buy some tumblers. The lady wanting to buy tumblers did not care for them because they were too heavy, and found some other fault with them. The salesman, in this case, said: "I don't like them myself," and pointed out such advantages as the glasses possessed. They are made heavy, for instance, so that they will not break if they fall on the floor. The buyer has been so impressed with the salesman that she has forgotten she does not like the glasses, and goes away having bought them, and her remembrance is of the salesman rather than of the glasses.

Through investigation, it has been found out that the bulk of sales are centred in the small portion of the week, really the latter half.

Analyzing the Customer

Mr. Fehlman classified various types of customers in the following interesting manner. There are five classes, and these are:

(1) Those compared to a hand car;

(2) Those compared to the local freight trains;

(3) Those compared to the local passenger trains;

(4) Those compared to the fast express;

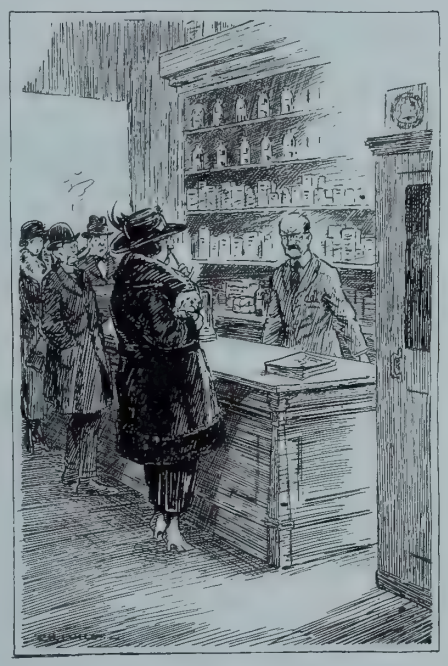
(5) Those compared to the Twentieth Century Limited.

Dividing the various classes of buyers into these divisions, the speaker went on to analyze them.

Of the first, or hand car type, there was a very small percentage among the average customers coming into a store. As a matter of fact, this was figured to be 1.6 per cent. of the total, and the speaker referred to them as pretty close to imbeciles. The next section, that of the freight train class, amount to 18 per cent., and these are rather stupid persons and of slow mentality. These are the people who must be told a story two or three times, explaining matters very fully and going over them. This class of customer, the speaker pointed out, was only 12 or 13 years old mentally, as a rule. The next group, that of a local passenger class, comprised 60 per cent. of customers. These are the people who receive from $1,200 to $1,400 a year, and are the backbone of any business.

"This is a group I like to talk to and advertise to," said Mr. Fehlman. "The next group is that of the express train class, and comprise 16 per cent. of the total. These people usually draw salaries of from $3,000 to $10,000 a year, and with such a class of people the salesman can talk faster and make his point much more rapidly than with any of the previous classes. These people accept the style and the buying case all the way along, and it is one of the reasons why this class is so important. The last class, that compared to the Twentieth Century Limited, comprise but 5 per cent. of the buyers, and these are the 'runners of the world.' This class is very exacting. They care not what they have to pay for an article, and are the hardest people in the world to sell, for the simple reason that they have whims of their own which few people can satisfy. Few salespeople are capable of handling this group."

Ever Meet This Kind?



Drawn for Cartoons Magazine by R. B. Fuller.

The Lady (acidly, to busy pharmacist): 'I have been standing here for some time to be waited on. I want you to look up a number in the telephone directory!

Handling the Merchandise

The speaker went on to point out how important it was to properly display merchandise before the customer. Some people like and some do not like a given article. Picking a napkin up from the table, Mr. Fehlman introduced a chart to illustrate his point, and emphasized the necessity of remembering that if one were selling napkins to a woman it was necessary to hold fast to the traditional shape and size of the napkin, so as to make use of the mental faculty of the prospective buyer. If a man intended to sell this napkin as a hand towel, the chances of success would be very small. Illustrating this point further, the speaker referred to his chart as one which had two lines; one of these was curved and was easy on the eye, and the other line was jagged and very hard to follow. This illustrated the point the speaker wished to make with regard to placing merchandise before the prospective buyer to the best advantage. It was very important to remember this point when showing goods which were being displayed for the first time, and the idea of the curved line and not the jagged line could be borne in mind.

Attention value was a very important point made by the speaker, and concentration was also greatly emphasized. Tests showed that none had been able to concentrate for more than two seconds at a time. This may sound strange, but the speaker was referring to the inability of the average human to definitely concentrate on a given article or subject without in the least diverging from the subject or matter in hand.

Trained Man's Advantages

This point was further illustrated by pointing out the necessity of concentrating upon the outstanding advantages of a given product. Taking a spoon from the table, the speaker proceeded to explain the advantages to a customer. The outstanding thing about this spoon was that it would not tarnish from using marmalade or eggs at breakfast time. Its second important point was that it is so heavily plated that it would not wear off at the points of contact. In the third place, "we guarantee it."

"By concentrating in this way it is possible to send home such important arguments that a sale is likely to be made," he said.

The same thing might apply to a type of underwear which sells because it possesses certain qualities. The same thing might be applied to clothing, haircuts, shoe shines, etc.

"If salesmen will not keep abreast of developments they will not be a success, for we are in times of rapid and constant change. A trained salesman will outsell untrained salesmen two to one, and this has been proven in many instances," said the speaker.

Mr. Fehlman pointed out that he had carefully analyzed what brought customers to a store. This analysis had revealed the fact that 78 per cent. came through the influence or solicitations of friends, 12 per cent. through advertising, and the balance of 10 per cent. just "dropped in." Repeat sales are the profitable ones.

"I think I can sell a man in 15 minutes the first time, but the second sale must be made on the value of the merchandise. The argument here must sink in if the customer is to be sold, after the first sale has been made. Quality is the only assurance of continued sales. No sale can be neutral. The customer must be either with you or against you."

Appearance and Address

The importance of a salesman being well groomed was pointed out by the speaker.

"When a customer comes into the store and approaches me to ask for something, once I have opened my mouth that customer has a mental measure of me," he pointed out, saying:

"Another important thing which must be possessed in a salesman, if he is to be successful, is that of a good vocabulary. The average salesman has 1,500 words in his vocabulary out of a total to be found in the English language of over 650,000." Through the use of a vocabulary—a business man's vocabulary which has been compiled—Mr. Fehlman pointed out that inside of six months five hundred new words could be acquired by an intelligent salesman.

In the next ten years, the cost of advertising could be cut down immensely if the retailer would open his own school for the development of his salesmen. This was illustrated by reference to an outstanding and successful men's wear man who is doing a large business in Chicago. This firm employed 85 salesmen, and they are required to go into an upper room from time to time, where dinner is served. At the close of dinner, about 7.30 p.m., they start out to sell each other the various goods. A salesman must sell, inside of ten minutes, a banker a suit of clothes, for instance. The same plan is carried out with other lines handled in the store, and the result of this schooling has been that salesman's remunerations have risen from an average of $25 to $60 a week to $45 and $175 per week, based wholly on sales.

"Sell Your Salesmen the Idea of Education," said the speaker. "The proprietor's interest in the salesmen is the most important factor, and he can be of much assistance by following out the above plan.

"Instead of selling a man who comes in to buy one suit of clothes sell him two. If he comes in to buy a hat sell him half a dozen."

"It Can Be Done"

This was emphasized by reference to a concrete case, where a young man who had been coached by Mr. Fehlman had changed his plans on the next customer who came in. He had put his idea into practical use, and when he got through was surprised himself at the results, having sold the customer a very much larger amount than he could have done under the old plan. After the customer had gone out he remarked: "You can do it, can't you?"

The matter of suggestion can be brought in here as, for instance, when a man comes in to buy a pair of socks: "Of course, you want a new pair every day, don't you?" and the customer will not acknowledge that he does not. He is very likely to take the suggestion of the salesman, and buy a pair for each day of the week. The same follows with underwear, shirts, shoes, etc.

"Deference to the customer," said Mr. Fehlman, "is something which all appreciate, and when a man comes in to buy one shirt, visualize his appearance, and then select two or three shirts and show to him that selection which will give him a proper shirt for all occasions."

Unfair Methods Is Latest Charge

WASHINGTON.—The Federal Trade Commission has issued a complaint against Colgate & Co., charging unfair methods of competition, on account of their price maintenance policy. This has come to be known as the "Colgate plan," and has been adopted by other manufacturers, to meet the evils of price cutting.

The company was indicted for violation of the Anti-Trust Law, but received a favorable decision from the Supreme Court of the United States. The new charge by the Federal Trade Commission is that the refusal to sell to dealers who do not resell at the prices which the company suggests is unfair to the competitors of Colgate & Co., in that the effect of the policy is to induce dealers to purchase Colgate products in preference to similar products manufactured by others on which prices are not maintained.

First Steamer From Germany In Five Years

ST. JOHN, N.B.—The arrival of the steamer "Clairton" here marked the re-opening of trade with Germany and this port, after a lapse of five years. This is the first vessel that has come to St. John direct from a German port since the beginning of the war in 1914. She is a British vessel, belonging to the C.P.O.S., but her cargo, 2,000 tons of potash, is German. The "Clairton" is a vessel of 4,259 tons. She had an uneventful trip over from Hamburg, and not many lookers-on knew that the cargo of this steamer coming up the harbor, flying the British flag, was from our former enemy. The cargo is for the Western States and Havana.

Board Says Order Must Be Obeyed

Many Firms Do Not Even Know That Order Has Been Issued, But Statement From Ottawa Indicates That Non-Compliance Will Constitute a Breach of the Act—Ontario Representative of the Board Unable to Give Information

COMMISSIONERS O'CONNOR and Murdock of the Board of Commerce have issued a statement from Ottawa emphasizing the importance of hardware merchants complying with the order as published in SANITARY ENGINEER three weeks ago regarding prices of building materials.

The Commissioners lay stress upon the fact that the order has now the same effect as if it formed part of the Board of Commerce Act, and that non-compliance with the order will, therefore, constitute a breach of the Act.

WHAT THEY WANT

The object of the order, the Commissioners say in their statement, is to secure sufficient information preliminary "to enable the Board to intelligently proceed with further and more extensive enquiries," it being charged by Parliament with the obligation of making such enquiries. Its enquiries do not imply guilt on the part of any person, but its orders must be strictly obeyed.

TO GET AT PROFITS

Full and fair disclosure of the information asked for should be made, says the statement, and if profits made are fair, it will be the Board's duty to say so. If unfair, "it must perform its duty in another way."

Inquiries by SANITARY ENGINEER indicate that many hardware merchants are still very much in the dark regarding just what is required of them by the Board's order.

The hardware merchants are not the only ones who need illumination on the matter. Major Duncan, the Ontario representative of the Board of Commerce, was asked by SANITARY ENGINEER for some definite information which might be passed along for the guidance of the men in the trade.

"Have you read the order?" he asked, and when informed that the writer had read it carefully, thought its meaning was obvious.

DID NOT KNOW

It was pointed out to him that many hardware merchants sell electrical fixtures and electrical equipment of various kinds, and that they also sell heating equipment. Asked if returns were expected on these lines, he said he did not know, and made a note of them.

It was also pointed out to him that nearly every hardware merchant sells paints and varnishes, and he was asked if returns would be required on these. Again he did not know, and made another note.

HOW WILL THEY KNOW?

When told that many of the hardware merchants did not know that the order had even been issued, let alone its requirements, he took the attitude that it was their business to know. The order had been published in the *Canada Gazette* and in many of the daily papers.

It was pointed out to him that only a very, very small fraction of the people in Canada ever see the *Canada Gazette,* and that thousands of them never see a daily paper.

Major Duncan admitted that the *Canada Gazette* was probably not very widely circulated, and said that something would be done to give more publicity to the order.

DID NOT EXPLAIN

He did not explain or make any attempt to explain how the Board of Commerce hopes to get returns from the hardware merchants, when its own representative does not know what is required.

In the meantime the hardware merchants in many cases are endeavoring to find out just what is wanted. Some of them have written to Ottawa. Others have discussed the situation among themselves in an effort to arrive at what will be done. Others are still unaware of the existence of the order.

"We are going to make returns as best we can," said one merchant; "if they are not what is required it will be up to the Board to advise us just what they want, and then we will try and give them the information."

WILL FIND NOTHING

The opinion seems to be general among the hardware merchants that the Board of Commerce will find that profits made by hardware merchants on building materials are very small—in many cases not even what might be called a fair profit.

EDITORIAL COMMENT

DEMANDING WATERWORKS

ONE of the most encouraging signs of progress in connection with many of the smaller municipalities lately has been the steps they are taking to install waterworks systems. This is a move that every man in the trade should get behind and boost with all the energy he can, not because of any work he may secure in connection with the installations but from a public health standpoint. The advantages of a common water supply, with the convenience of running water in each house, as against individual supply, such as comes from a well, are obvious. The former is sanitary, convenient, far cheaper in the long run and has the important general advantage that it reduces hazard from fire. This is an item that can be measured immediately in dollars and cents in the reduction on insurance. The steady growth of the installation of waterworks systems is greatly to be desired from every standpoint. Statistics show that in Ontario and Quebec there are more than 180 public water systems for communities having population of 2,000 or less. A number of others are preparing to install waterworks systems during the coming year.

CONTRACTS ARE IMPORTANT

IN connection with the article in the previous issue of SANITARY ENGINEER, "Proper Form of Contract is Needed," it is interesting to note the action since taken by the Association of Canadian Building and Construction Industries at its Annual Meeting in Ottawa. The members of this organization are face to face with the same conditions as the men in the Sanitary Plumbing and Heating business. They realize that in view of present day conditions that something must be done to protect their interests.

As a result of the discussions which took place at the meeting at Ottawa radical changes in the relations of the members of the Association with Architects and Engineers will be made. Standard forms of contract are favored in every instance, and the Association is going even further in that it will ask the Royal Architectural Institute of Canada, and the Engineering Institute of Canada to meet members of the Building Association to draw up a standard form of contract which may be used throughout the Dominion. They are also advising that the same committee prepare a standard form of sub-contract which would bind the sub-contractor to the same conditions of contract as the general contractor with the same conditions and privileges accruing to both. This move by the men in the building trades is of keen interest to sanitary and heating engineers, and the action which has been taken by the men in the building trades may well be emulated by the men in the plumbing trade. If this is done it will, without any question, save an enormous lot of money which is now being lost. It will also act as a safeguard to the men in the trade all round. As stated in the previous issue of SANITARY ENGINEER, the plumbers of Toronto have adopted a standard form of contract, and it is estimated that it is saving them large sums of money every year. The men in the trade outside the city of Toronto should endeavor to work out by themselves a similar form of contract, and if they do this they will benefit by it.

LUMBER PRICES SOARING

AN advance that will affect all grades of pine lumber, from mill culls up to the finest pieces, has been announced in the Ottawa lumber market with the comment, also, that further increases may be expected at any time. The advances now effective range from $5 to $12 per thousand feet. The lumbermen of the West are also naming higher quotations. The present situation is that many of the firms have such large orders on hand for overseas shipment that they do not care whether they supply home needs or not. This may materially affect the the erection of homes.

THE STEEL SITUATION

PRODUCERS of semi-finished and finished steel are having serious difficulty in making deliveries. The latest reports indicate that the steel market is practically sold up and that the general shortage is increasing rather than diminishing. Advices received by firms during the week indicate that as far as the future delivery of bars, sheets and plates is concerned the demand is insistent without anything like adequate supplies to meet it. "Even under normal conditions," says one letter, "with fuel, labor and transportation in good shape, the supply would still be inadequate. But conditions are far from normal. Labor is high-priced, and general experience indicates greatly lowered efficiency. There is a shortage of fuel, and in some

districts of power, congestion on many railways and car shortage. The latter is one of the worst features of the present situation from the consumers' standpoint. We cannot undertake to promise anything in the way of production or delivery at the present time." Reports from Pittsburgh state that sheet mills are operating at a capacity of not more than 75 per cent., with about the same condition applying to plates. Wire products are not so seriously interfered with. Speaking generally, conditions are such that changes are likely to occur at any time, and many of the men most closely in touch with the situation are looking for radical changes in the next six months.

THE INFLUENZA EPIDEMIC

SOME of the daily papers go too far with scare headings and articles concerning epidemics. In connection with the present influenza epidemic in different parts of Canada, there have been statements made in the daily press and inferences drawn which have tended to so scare people and make them anticipate the disease that, through fear and dread of getting it, their worries actually undermine their constitutions. For instance, a heading in a prominent Canadian morning daily this week read: "Flu Epidemic Continues to Spread," and the article intimated that everybody at all susceptible to the germs would no doubt be stricken before it subsided.

SANITARY ENGINEER has always favored bringing to light facts, but there are different ways of presenting facts. They can be given in a way that they can be understood properly—and this is the big difference between the reports of events in the daily and the specialized business press.

In regard to the present epidemic, publicity showing how to keep the body in good condition, how to avoid the germs as far as possible, and what to do in case the disease takes hold is good publicity. But the scare headings and morbid details could be very well eliminated.

This should be a matter for Boards of Trade of the various centres to take up with their local papers. By pointing out to these papers how such reports, many of which are greatly exaggerated, are unsettling business in general and tending to bring about the very thing to be avoided, the Boards of Trade in Canada could do a splendid work.

GOING ON A CASH BASIS

THE daily and weekly newspapers in all parts of Canada in the past few weeks have contained an unusually large number of announcements from firms who are advising their customers that "we are going to conduct our business on a cash basis." This is a move that has been gathering momentum steadily for some time and has in many cases been necessitated by the conditions which the retailers have had to face. It has been aided by the circumstance also that money has been plentiful and many firms saw an opportunity to adopt a policy which they had long desired to put in effect. The elimination of the tremendous amount of unwise credit that has been granted in the past will undoubtedly have the effect of putting the business of the country on a more sound basis. The move to cut out credit does not mean that there is to be absolutely no credit granted. Legitimate cases such as arise in dealings with contractors or firms who settle at regular periods will be provided for, but the individual who from mere force of habit has been running a charge account and paying when he got good and ready to pay, causing loss and inconvenience to the merchant, will find that it is to his interest to pay up. The firms who are going on a cash basis in their announcements are putting it squarely up to the people and are telling them the reasons why they are making the change.

FARMERS ARE PROSPEROUS

WILL prices of grain, cattle, dairy products and other farm produce remain high? This question is an important one to both merchants and manufacturers. The farmer is the greatest purchasing agent in Canada to-day, and at the prices he has been receiving for some time now for all that he has to offer, he has been buying as never before. The Warden of an Ontario county, a farmer himself and in close touch with the work the farmers' organizations are doing, stated to SANITARY ENGINEER recently that prices of farm products will never go back to where they were because if the farmers see that they are going to drop materially they will limit production. This is the view of a man who is, perhaps, one of the most up-to-date and wide-awake farmers in his community, and may be accepted as correct. This is a situation which is anything but desirable, and its solution would have to be worked out. While the farmers have been receiving large sums of money and have been improving their homes and farm buildings and buying automobiles and improved machinery, they have never forgotten for one moment to be thrifty. In one small Ontario town, a place with 4,000 population, there is more than $3,000,000 in deposit in the banks, and most of it belongs to farmers. In another much smaller town in the same vicinity deposits in proportion to the population are much higher. There is every indication that there is going to be a continued demand for everything in the way of foodstuffs that the farmers can raise. While prices may decline a little from the peaks they have soared to, there is every indication that in so far as the farmer is concerned he is going to have plenty of money and that he will continue to be a large buyer.

REGISTERED TRADE MARK

SUPERIORITY PURITY DURABLE AS THE PYRAMIDS

Port Hope Sanitary Plumbing Ware

Every Fixture is unconditionally guaranteed and bears our label as a protection for you and your customers.

THE "CANTERBURY" LAVATORY

Every Master Plumber Should Have Our *Roughing-in Booklet*

This 212 page booklet contains sectional drawings of every "Port Hope" fixture and accessory shown in our catalog with complete roughing-in measurements.

This booklet, nicely bound in cloth, is printed on good quality paper and has round corners—a real pocket edition.

It may be obtained by writing direct to our head office, our branches or to the jobbers. It's yours for the asking.

Port Hope Sanitary Mfg. Company, Limited

Opportunity Is Knocking at Your Door, Now

THE Building Outlook was never better. Ontario Housing Commission is preparing to build 4,000 new homes this year.

Speculative builders will double this number, 8,000 to 10,000 new Ontario homes.

Sanitary Engineers and Master Plumbers will have the busiest year in their lives. But it must be the right class of business. The best sanitary equipment procurable is none too good for that new home of the Returned Soldier or the Workingman. It is just as essential and economical to the new factory, business house or palatial residence.

We can confidently recommend Port Hope Sanitary Enamelware goods as second to none on the continent. And you can carry our full stock IN YOUR POCKET by means of our catalogue, complete in illustrations of all bathroom, kitchen and laundry equipment.

Get in touch with the builder with one of our "For the Home" or "For the Factory" catalogues, sent on application. Increase your business; your opportunity was never better.

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WINNIPEG OFFICE
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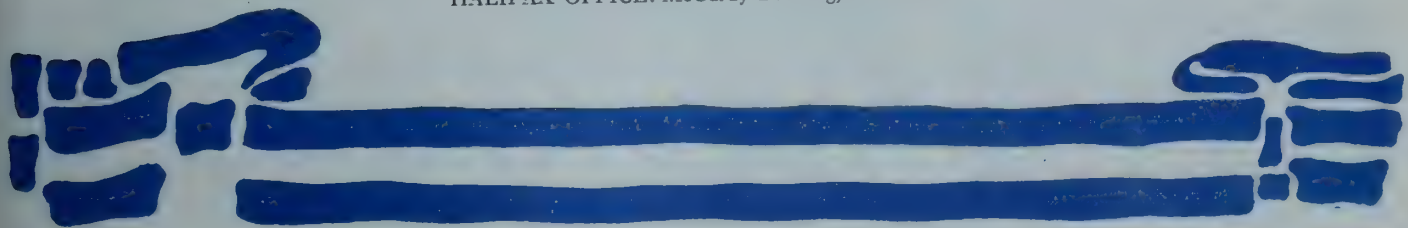
HALIFAX OFFICE: McCurdy Building, Hollis Street

Head Office:
ROYAL BANK BUILDING, TORONTO
MONTREAL SHOW ROOMS
234 Beaver Hall Hill



News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

Personal

Thomas Ferguson, who, as reported in a previous issue of SANITARY ENGINEER, was in Toronto General Hospital to undergo an operation, has recovered sufficiently to be removed to his home.

Harold Barnhart, formerly in the plumbing business at Brockville, Ont., has purchased a piece of property on the lake front at Oshawa, Ont., consisting of eighteen cottages, pool room, confectionery store and boats, and plans to look after same, paying special attention to the confectionery store.

Obituary

The death occurred at Belleville, Ont., of William McGie, aged sixty, for many years in the hardware and plumbing business. He had been living retired for some time.

Trade Notes

Pierre Therien & Co., plumbers, Montreal, have dissolved partnership.

Thermos Heating Systems, Limited, of Toronto, has been granted permission to change its name to Fuel and Heat Systems, Limited.

The Galt Brass Company, of Galt, Ont., will start work shortly on a large extension to its plant.

Incorporations

John A. Lillie & Company, Limited, head office Toronto, capital $40,000, plans to carry on a general plumbing and hardware business.

Sully Brass Foundry, Limited, capital $40,000, head office, Toronto, plans to carry on a general business as brass founders.

The Tube Company of Canada, Limited, capital $100,000, head office, Toronto, plans to manufacture and deal in metal tubing, sheet metal and stamped and drawn products.

The West Furnace Carburetor Company of Canada, Limited, capital $100,000, head office, Toronto, plans to manufacture and sell furnace carburetors and accessories.

Kilmer and Barber, Limited, capital $300,000, head office, Toronto, plans to carry on a general business in the construction of sewage, drainage, gas, water, sanitary and other public works.

Shannon The Plumber, Limited, capital $40,000, head office, Toronto, plans to carry on a general plumbing business and to manufacture and deal in plumbing goods and supplies.

Kitchener Firm Plans To Erect 500 Houses

Kitchener, Ont.—The Kitchener Construction Co. is preparing plans for the erection of from 400 to 500 houses in Kitchener during the year. The company is composed largely of business men of the city and the co-operation of the business men and manufacturers will be enlisted for the purpose of providing the necessary housing accommodation to man the industries of this city.

WILL BE RESUMED IN NEXT ISSUE

Owing to the death of Mrs. N. A. Kearns, following a very brief illness with influenza and pneumonia, the series of articles which Mr. N. A. Kearns is writing for SANITARY ENGINEER *is omitted from this issue.*

The series will be resumed in the next issue.

J. Lorne Bigley Is Victim Of Pneumonia

Pneumonia, which developed after an illness of only a few days with influenza resulted in the death at his home in Toronto of J. Lorne Bigley, vice-president and manager of the wholesale department of the R. Bigley Manufacturing Co., Ltd., manufacturers of steam fittings. He was 35 years old and a member of the Granite Club, and of the Argonaut Rowing Club. Besides his wife he leaves a little daughter and three brothers, all of whom were associated with him in the business.

Plumbing Bylaw Is Planned At Burlington

Burlington, Ont.—Reeve Bridgeman, at the regular meeting of the council, recommended that a plumbing by-law be passed which calls for the inspection of all plumbing done in the town. He stated that complaints had been made and thought the sewer inspector could handle the work. Mayor Cleaver said it was good business to have an inspector for the plumbing. "We must protect our ratepayers. Of course, all the work is not bad, and such a by-law would be fair to everybody." It was recommended that Reeve Bridgeman get in touch with Hamilton, Toronto and Oakville and secure copies of their by-laws.

Plumbers' Helpers Must Affiliate

HAMILTON, Ont.—Alexander Bonner, business agent of the Plumbers' Union, presided at the meeting of the newly-organized local of plumbers' helpers, held in the Labor Hall. The meeting was addressed by J. Bruce, Toronto, organizer of the Plumbers' International Union, and he said that according to the constitution the helpers would have to affiliate with the journeymen plumbers' union—that the organization could not be a separate one. It was decided to take steps for affiliation at once. Six new members were initiated.

Sanitary Inspector Busy At Vancouver

VANCOUVER, B. C.—Efforts of Dr. F. J. Underhill and Chief Sanitary Inspector Jos. Hynes to have ice cream and soft drink vendors provide hot water for sterilization of drinking vessels and utensils are meeting with success.

The health department's campaign for better sanitary arrangements in public refreshment places has been rigorously conducted. In several cases proprietors were notified that their licenses would not be renewed until they had complied with the provisions of the public health department. Several places were found to be rinsing glasses in cold water and in one instance an establishment had no arrangements for cleaning them.

Following action of the health department officials one firm made plans to instal a sterilizing system to cost approximately $1,800. Other vendors are co-operating with the health department in its endeavor to provide boiling water plunges for drinking cups, ice cream dishes and utensils.

Endeavors are being made to have ventilation systems placed in apartment and rooming houses, especially in cases where gas stoves and heaters are used. The danger to the tenants of such rooms is apparent and inspection has revealed that immediate attention is necessary.

Sanitary accommodation at theatres

and picture shows has been found inadequate in several instances and steps are being taken to rectify it immediately.

Will Work On A Percentage Basis

Quebec Master Plumbers are concentrating a new departure in connection with taking contracts. Under the present conditions it is almost impossible to buy material at a stated price. An order may be placed for delivery when the manufacturer is in a position to deliver, but matters have so developed that few would quote a definite price at time of delivery, whenever that may be. At the consequence, the plumber is placed in an awkward position and this has given rise to the suggestion that contract work in the future will be done only on a percentage basis. That is to say, the material and labor cost will be totalled, and the percentage agreed upon before the contract is undertaken.

Empire Mfg. Co. Buys Large New Warehouse

The Empire Manufacturing Company, Limited, of London, Ont., has purchased the Mendelssohn Building, at 110 Adelaide Street West, Toronto, and will move from its present quarters at 119 Adelaide Street West, about April 1. For some time past the firm has required more room in order to look after the needs of steadily expanding business and the new warehouse will give twice as much space as the present quarters.

Sanitary Engineers On Builders' Exchange

MONTREAL.—At the last meeting of the nominating committee of the Builders' Exchange held in the Drummond Building, Montreal, the following were nominated for the year 1920: President, W. M. Irving; hon. secretary, John C. Watson; hon. treasurer, J. E. Walsh.

The Trade Contractors' Section also held their meeting last week and made the following nominations: Chairman of Section and second vice-president of the Exchange, S. J. Parsons; seats on the Board of Directors were: C. Lapourelle, R. F. Sykes and J. Roberts.

Dresden Waterworks To Be Remodelled

DRESDEN, Ont.—Tenders will be called for shortly in connection with extensive improvements to the waterworks system. It is planned to convert the present steam plant into one operated by hydro and plans are being prepared by Engineer F. W. Farncombe, of London, Ont. A contract was recently awarded to the Canadian Des Moines Steel Co., of Chatham, Ont., for a large new steel tank.

Men in Building Trades Recognize Importance of a Proper Form of Contract

Sanitary and Heating Engineers May Profit by the Example Being Set by Others—Under Present-Day Conditions This is Important

IT is interesting to note in connection with the leading article in the last issue of SANITARY ENGINEER, "Proper Form Of Contract Is Important," the action taken by the Association of Canadian Building and Construction Industries at their annual meeting in Ottawa.

Realizing the vital importance under present day conditions, especially of a proper form of contract, the Association went on record as favoring a number of radical changes in their relations with architects and engineers as regards the letting of contracts.

Standard forms of contract are favored and the association will ask the Royal the Engineering Institute of Canada each to appoint two of their members to meet four members of the building association to draw up a standard form of contract and general conditions which can be used throughout the Dominion. They also advise that the same committee prepare a standard form of sub-contract which would bind the sub-contractor to the same conditions of contract as the general contractor with the same conditions and privileges accruing to both.

The association also adopted the recommendation that no sub-division tenders or unit prices be given to architects or engineers before the contract is closed or before written assurance has been received that a contract has been entered into.

Both the architects and the engineers will be notified that general contractors will not, in the future, submit tenders when the architect (or engineer) is at the same time taking bids on his work by trade.

The practice of giving certified cheques with bids is also disfavored by the association and it was suggested that in view of the large deposits which have to be made by bonding companies with the Provincial and Dominion Governments, that bid bonds be substituted.

Penalty and bonus clauses in contracts will also be opposed. The members contend that as the architects and engineers reserve the right to dismiss any contractor for incompetency that these clauses should be eliminated.

HIGHLY HONORED

"JACK" McLELLAN

At the annual meeting of the Dominion Commercial Travellers' Mutual Benefit Association, held in Montreal last week, John McLellan, known to his friends as "Jack," was elected to the presidency. Mr. McLellan has been associated with the benefit section of the Association for the past four years, and in this work has taken a keen interest. In addition to having been a director of the benefit section for four years, he was, for the same period, a director of the Dominion Commercial Travellers' Association, and for the past year was vice-president of the former. He covers Eastern Townships territory for the Thos. Davidson Mfg. Co., Ltd., Montreal.

Banquet In Quebec To Be Held April 10

A very ambitious program for a banquet is contemplated by the Quebec Builders' Exchange. This is proposed to be held on or about April 10th next, and when all lines of the builder's trade will be represented. The banquet will be held, it is understood, at the Chateau and prominent speakers from various parts of Canada will be in attendance.

In speaking with E. G. Brousseau, president of the Plumbing Section of the Builders' Exchange, SANITARY ENGINEER was informed that while the membership is now around 85 it is expected to be 125 in a very short time.

ACCIDENTALLY OMITTED

In the account of the annual ball and "At Home" of the Toronto Society of Domestic Sanitary and Heating Engineers, which appeared in the previous issue of SANITARY ENGINEER, the name of Harry Farthing, chairman of the committee in charge of the arrangements, was accidentally omitted.

Contracts Awarded

Cap de la Madeleine, Que.—Massicotte & Freres have plumbing for new school costing $88,000 for the Public School Board.

Toronto.—The Fred Armstrong Co., 278 Queen Street West, has plumbing, heating and ventilating contract in connection with new school costing $156,000.

Montreal.—J. E. Brule, 3279 Christophe Colomb Avenue, has plumbing and heating for six residences costing $30,000 for Duquette & Patenaude, 2668 Park Avenue.

Kitchener, Ont.—Hollinger & Durst, 65 Frederick Street, have plumbing and heating for several residences being erected by the Kitchener Housing Commission.

Outremont, Que.—P. P. O'Shea, 64 Victoria Square, has plumbing and heating for addition to convent costing $50,000, the Sisters Marie Reparatrices, Mount Royal Avenue.

Toronto.—R. G. Johnston, 17 Galley Avenue, has the heating, plumbing and electrical work for new lavatory building costing $12,150 for the Board of Control.

Montreal.—Selkirk Bros., 2308 Waverly Street, have plumbing and heating for hostel costing $16,000 for the Montreal Sailors' Institute, 6 Place Royal.

Toronto.—W. E. Manners, 2326 Queen Street East, has plumbing and heating for four bungalows costing $18,000 for P. C. Brown.

Victoria, B.C.—McDowell & Mann, 708 Yates Street, have plumbing contract for new garage costing $11,000 for H. A. Davie, 847 Yates Street.

Ottawa.—J. P. Band & Co., 775 Bank Street, has the plumbing, and the Capital Hardware Co., 845 Bank Street, heating for residence costing $5,000 for Miss E. Ronan, 156 Irving Avenue.

Montreal.—A. Blais, 2 Langevin Avenue, has plumbing and heating for new residence costing $8,000 for C. DeGuise, 364 Addington Avenue; also for three residences costing $15,000 for J. P. Tremblay, 293 Prudhomme Avenue.

Tenders

Leamington, Ont.—Plans are being prepared by the Dominion Canners for new canning factory to cost $60,000.

Yorkton, Sask.—The Public School Board contemplates erection of new school to cost $115,000. J. M. Clark, secretary.

Winnipeg.—The erection of new buildings to cost $300,000 for the University of Manitoba is contemplated.

Stratford, Ont.—The Parks Board will call for tenders shortly for new lavatories and pavilions to cost $35,000. R. T. Orr is chairman.

Toronto.—The Property Committee of the City Council is providing in its estimates for the erection of a public lavatory at Queen Street and Kingston Road.

Drummondville, Que.—Plans are being prepared for the building of 150 dwellings for workingmen under the Housing Commission plan. Walter Moisan, town clerk.

Chicoutimi, Que.—J. L. Simard is preparing plans for new residence to cost $10,000. Prices wanted on plumbing and heating equipment.

Kitchener, Ont.—The Kitchener Construction Co. wants tenders for heating, plumbing and electrical work in connection with eleven new dwellings to cost $3,500 each.

Kentville, N.S.—Roy Calkins is preparing plans for new residence to cost $7,000 and wants prices on heating and plumbing equipment.

Biggar, Sask.—Plans are being prepared for the erection of a new hospital to cost $100,000. Frank Hopkins, secretary of the Board.

London, Ont.—The Housing Commission, E. R. Dennis, chairman, will call for tenders shortly for all work in connection with the erection of sixty new dwellings to cost $200,000.

London, Ont. — Tenders will be called shortly for the erection of three new buildings for the staff of the Psychiatric Hospital, to cost $90,000. H. C. McBride, Molsons Bank, London, Ont., architect.

Quebec, P.Q.—C. J. Lockwell, 35 St. Peter Street, is preparing plans for two new stores to cost $100,000.

London, Ont.—Plans are to be prepared for new church to cost $35,000 for the Egerton Street Baptist congregation. Rev. A. C. Bingham, pastor.

Regina, Sask.—The Swift Canadian Co. contemplates erection of a cold storage plant to cost $250,000.

Brantford, Ont.—Board of Education (Dr. J. B. Gamble, chairman) plans to build a 17-room addition to the Collegiate.

Montreal. — The Roman Catholic School Commissioners, 87 St. Catherine Street W., have been authorized to borrow $1,000,000 for building eight schools.

Lachine, Que.—City Engineer A. Laframboise is preparing plans for filtration plant and improvements to waterworks system to cost $300,000.

Plan to Ask for an Increase of British Preference

Canadian Association of British Manufacturers at Their Annual Meeting Discuss Many Matters—George A. Marshall Was Elected President

At the annual meeting of the Canadian Association of British Manufacturers and their representatives, which took place at the Walker House on January 28, a lively discussion arose as to the future attitude of the association towards representatives or agents who may enter into any agency agreement with manufacturers or wholesale exporters whose principal works or places of business are situated in a country which was hostile to Britain during the war. The debate had its origin in a suggestion made that a clause of the constitution, prohibiting representatives of British manufacturers having similar connections with firms of or in former enemy countries from membership in the association, should be deleted. After many arguments had been advanced, it was resolved to submit the proposed alteration in the constitution to a "postal vote."

GEORGE A. MARSHALL

President of the Canadian Association of British Manufacturers. Mr. Marshall is a partner in the firm of Marshall, Son & Bunney; president of the Kerr File & Tool Co., Ltd., and proprietor of the Perfection Sanitary Brush Co.

Arrangement Reached

Mr. John Wilson, the retiring president, in his address, made an announcement which was well received, to the effect that an arrangement had been reached with the Federation of British Industries by which commercial intelligence could be exchanged between members of the Canadian Association and the British manufacturers. The Federation of British Industries, Mr. Wilson stated, had a membership of over 19,000 firms, representing $20,000,000,000 of capital engaged in British industries. It would now act as the London representative of the members of the association, which, he declared, now number 85, representing about 400 British manufacturers. The London office of the F. B. I., situated at 39 St. James' Street, London, S.W. 1, would now be available for members of the association visiting in London as a means of getting in touch with such members of the Federation as they might wish to see.

Want Preference Increased

With regard to tariff matters, Mr. Wilson said that the association was in close communication with the Minister of Finance with a view to increasing the British preference on such items as iron and steel, paints with spirit base, fire brick and other clay products, etc. He invited the members to submit all their tariff difficulties to the Executive Council, so that it might present them to the proper authorities, as the Dominion Government had agreed to receive a deputation from the association when the proposed tariff investigation is held. The Executive Council had also, he said, passed a resolution requesting that the Department of Overseas Trade of the British Government take immediate steps to appoint the necessary inspectors in Great Britain, in order that the certificates required by the Canadian Government, in respect to imports of potted meats, might be forthcoming for shipment to Canada from British firms.

The election of officers for 1920 resulted as follows: President, Mr. G. A. Marshall; vice-president, Mr. J. Harris; council, Messrs. A. C. King, C. W. Beal, James Haywood, R. D. Harding and Harold A. Wilson.

Natural Gas Companies Are Asking Permission to Increase Rates

Claim That Costs Have Advanced 200 to 400 Per Cent. and That They Cannot Maintain Adequate Service Unless Rates Are Advanced

NATURAL gas companies operating in Ontario Province want the Ontario Government to sanction their charging higher rates. A deputation representing all the natural gas companies of the province waited on Premier Drury, Hon. W. E. Raney and Hon. Harry Mills, and made the request.

The deputation, which was headed by C. E. Steele, president of the Canadian Natural Gas Association, told of the increasing costs in the production of gas, and the handicap they were under because of existing rates. They did not ask that the Government sanction the increase in rates on the statements they made. Instead, they asked that the Government instruct their Gas Commissioner, Mr. Estlin, to report on the statements made. If he confirmed the representations put forward by the companies, the deputation felt the Government should then permit of higher prices being charged.

Jump 200 Per Cent.

It was contended by the deputation that within the last few years the costs of materials have jumped from 200 to 400 per cent., and that wages have increased 80 per cent. The price of natural gas is 25 to 30 cents a thousand, which is one-quarter the price of coal to-day. Because of the low prices the companies are receiving, it was said, they are not able to go ahead and drill new wells to protect the future supply of the consumers, and that unless this is done the customers would, within a few years, have to buy coal, which is both scarce and costly. If manufactured gas were used it would probably cost from $1.25 to $1.50 a thousand.

While conditions vary with the different companies, one speaker said that his concern would require a rate of 40 cents during the winter months and 60 cents during the summer months. Consideration was promised.

New Sewage System For Lindsay Will Cost $40,000

Ground Work to be Commenced Shortly, as Plans Are Approved by Provincial Engineer F. A. Dallyn

Lindsay, Ont.—At a special meeting of the council, at which F. A. Dallyn, of Toronto, Engineer of the Provincial Board of Health, was present, the proposed new sewerage system for the Eastern part of the South Ward was discussed.

The new system will not be built in a year, but work will start immediatciy on the ground work. The new system will cost the town between $40,000 and $50,000, which will include a sewerage disposal plant valued at $10,000 or $12,000.

Work on the new sewers will start on Kent Street East, from a point opposite the Canadian Cereal mills, east to Simcoe Street, thence to Durham Street. In time there will be several extensions to the main sewer on the different streets. The system will cover the eastern part of the South Ward at present unserved.

In course of time it is anticipated that a sewerage system will be built in the East Ward with a disposal plant; also a disposal plant in the North Ward to take care of sewerage matter.

The town will build the disposal plant, while the sewers will be charged to the property benefiting thereby.

Figures For Gas Holder Stagger Commission

Guelph, Ont.—At a special meeting of the Board of Light and Heat Commissioners held for the purpose of opening tenders for the new gas holder to be erected here, four tenders in all were received, all from American firms. The commissioners were rather staggered when they found the lowest tenderer asking $55,000 and the highest $81,000, which price does not include the paying of duty, freight or other necessary expense in connection with the transporting of material. The commissioners decided to leave the matter open, and put it in the hands of J. J. Heeg and Mr. Muir, their consulting engineer.

Acute Shortage of Heavy Steel Plate

Montreal.—SANITARY ENGINEER understands that a very acute shortage exists on heavy steel plate. In one instance a quotation was reported as received and some actual business secured from a prominent manufacturer of scrapers, etc. This business, placed promptly, was finally turned down, the manufacturer of the steel plates finding that his mills were booked ahead so far that delivery could not be made for many weeks. It may be a factor in seriously delaying the manufacture and delivery of certain types of wheelbarrows, scrapers, etc.

New Reservoir Will Be Built At London

Work will be commenced early in the spring at London, Ont., on a new reservoir to cost $250,000 and a capacity of ten million gallons. Extensions will be made to the water mains costing $150,000 more. All the work is to be done by day labor under the direction of E. V. Buchanan, general manager of the Public Utilities Commission. Prices will be asked for shortly on five cars of cast iron water pipe from 6 inches to 10 inches.

Work will also be commenced by City Engineer H. A. Brazier on sewer extensions that will cost $80,000.

Water Service For Scarboro Township

TORONTO.—Scarboro township's new utilities commission at a special meeting laid plans for giving effect to the wishes of the ratepayers for the installation of a water service in the southwest district adjoining the city. The clerk was instructed to circulate a petition among the residents, and enroll at once all who desire a service. If half of the householders and two-thirds of the property interests express approval, council will pass a by-law authorizing the building of the system. A district has been laid out embracing all south of St. Clair and west of the Kennedy road, and the engineer's plans are already in the hands of the commission.

Montreal Man Warned To Be More Careful

MONTREAL. — Israel Tannahause, a plumber, has been warned by the authorities that he must exercise more care in thawing out frozen water pipes. This was in connection with the fire which occurred in the tailor shop of Nathan Fickler, 185 Bleury Street. Tanahause had been called to thaw frozen pipes in the cellar. He used a candle in order to find where the pipe was frozen and in doing so he set fire to the oakum with which the pipe was packed. Before the arrival of the firemen, however, he extinguished the blaze.

Port Dalhousie May Secure Waterworks

St. Catharines.—The village of Port Dalhousie is making a move to get a waterworks system, and the supply may come from St. Catharines. When the big pipe line from Lake Erie to Lake Ontario is finished, work on which is to be commenced this spring, all places along the Welland Canal will get their supply from Lake Erie. The digging of the new Welland Ship Canal is destroying their source of supply, and the Government is building the pipe line, which will cost several million dollars.

Public Utilities Are a Most Important Factor in Our Daily Lives

People Could Afford to Pay a Great Deal More for Them Than They Are Costing—Without Them We Would Go Back to Dark Ages

DISCUSSING the important question of the future of public utilities, a report made by the Committee on Waterworks and the American Society for Municipal Improvements says:

"It is well known that within the last few years all material and labor required for the construction, maintenance and operation of water works systems has advanced very greatly in cost, and, in addition, it is the general experience that the amount of labor output per man in most occupations has decreased, all resulting in a very much higher cost per output of service than existed before the war, which has left in its wake many problems of readjustment and reorganization, upon the wise solution of which the future of the world must be determined. These increased costs exist not only in water supply systems but in all public utilities.

"Public utilities generally are a most important factor in our daily lives, ministering directly to our comfort and convenience and affecting our health. If we should eliminate the public utilities to-day, we would go back almost to the dark ages. Every one of them is essential, and rather than eliminate any of them we could afford to pay for the services which they render a great deal more than their present cost.

"It is, we believe a fact, however, that utility charges have not increased because of contract or other legal limitations, or because of public opposition, in anything like the proportion that the cost of the service which they render has increased; many of them which are privately owned are in the hands of receivers; many others are struggling for their lives, and very few of them are in a position to extend and maintain their services as they would be if they could always be assured of adequate return for the services which they render.

"The fact is that neither publicly-owned or privately-owned utilities can be conducted to the best advantage until the public as a whole grasps the idea that every service must earn its cost and that the recipient of every item of service should always pay the full average cost of the items of service which he absorbs, leaving no portion of said cost to be carried by any who do not receive a service of some character from said utility. Once this idea is generally admitted it will be easy to induce capital to invest in privately-owned public utilities and to maintain said privately-owned utilities as well as publicly-owned utilities up to any standard of service which the public desires and is willing to buy."

Retail Merchants Organize Second District Branch in Saskatchewan

Town of Kerrobert Is Selected as Headquarters, and the Work Will be in Charge of A. E. Tutte, Recently Returned From Overseas

THE Kerrobert district of Saskatchewan has been chosen for the establishment of the second district branch of the Retail Merchants' Association, the town of Kerrobert being selected for the headquarters.

Mr. A. E. Tutte has been appointed district secretary and has already commenced a campaign for members. There are at present 100 members of the association in the Kerrobert district, but Mr. Tutte hopes to be able to secure at least 300 members for the district branch from all parts of the district. The Kerrobert branch will be known as branch No. 2 and will cover the territory lying between Ruthilda on the G.T.R., Anglia on the C.P.R. to the Provincial boundary and as far north as Cut Knife, Wilkie being included in the district.

Mr. Tutte, who has taken charge of this district as district secretary, previous to enlisting for overseas service, was commissioner of the Humboldt Board of Trade. Since returning he has received special training with the Retail Merchants' Association at the headquarters in Saskatoon and in connection with the Assiniboia district branch.

The object of establishing these district branches is to enable members to obtain information on subjects in connection with the retail trade, both through their district secretaries and the Provincial office, from which also they will have the service of the various departments, and also to get together at intervals for the discussion of various problems as well as for social intercourse and to further community work in its various phases. Another part of the program will be to co-operate with the various merchants who are members of the association in establishing lines of credit for the accommodation of the consumer and the protection of the retailer.

Address and Bag For Thomas F. Drummie

The St. John, N.B., branch of the Retail Merchants' Association tendered a farewell dinner to Thomas F. Drummie, who is leaving to become manager of the David's Stores, Montreal. After luncheon, P. M. Rising, of Waterbury & Rising, Ltd., tendered Mr. Drummie a nicely-worded address, referring to the valuable assistance he had given the Association. Mr. Rising then presented Mr. Drummie with a club bag on behalf of the association.

Mr. Drummie was one of those who helped to found the Retail Merchants' helped to found the R. M. A., of provincial advisory board of which he is a member, and he has been secretary for the last few years. He represented the Province of New Brunswick at the Dominion convention of this body in Ottawa in 1917.

He is a member of the Canadian Club and on the executive of the Commercial Club, of which he was one of the promoters.

Steel Mills Sold To Line of Safety

Pittsburgh, Feb. 14.—The bulk of the steel sheet trade, in so far as current buying is concerned, is between direct consumers and jobbers. The mill business has practically been closed for the first half, and in many cases it has been sold to the line of safety on production for the second half of the year. Shipments to jobbers are being made by sheet producers on account of contracts that show a good operating result of the mills in face of coal shortage, steel shortage and car shortage, and the jobbers' stocks that are going into the market are all that save the smaller consumer from absolute famine. No effort is made to follow prices on such business as this, but black sheet base has reached 6.50 cents and blue annealed 5 cents in such trading. It is, however, not fair to govern market conditions by such standards.

Sheetmakers are facing a continued shortage in sheet bars and this is as much due to car supply and railroad default as to steel shortage. While a normal car supply would unquestionably put an entirely different aspect on the steel industry, manufacturers say it would not cure the evils now being faced, for the excessive demand is far in excess of the combined raw steel capacity of the country. Galvanized sheet trade is extremely limited in so far as new business is concerned, but is fully normal in proportionate importance, now. Much inquiry for electrical sheets is said to be pending consideration, taking in second half delivery, and which may be put in the form of options on mill capacity.

Solving the Apprentice Problem

George Clapperton, President of the Toronto Society of Domestic Sanitary and Heating Engineers, Outlines Before Members of Builders' Exchange the Work That is Being Done in This Important Matter

THE following address given by Mr. George Clapperton, president of the Toronto Society of Domestic Sanitary and Heating Engineers, before the members of the Builders' Exchange, outlines what is being done to solve one of the most important problems in the trade to-day.

In working out the plans which are now in effect there were many matters that had to be arranged in order that the best interests of all might be served. The basic principle behind the whole plan is to turn out men who will know their business and who can go anywhere and work at the trade. It is likely that the plan adopted in Toronto may be made Dominion wide.

Mr. Clapperton, on rising to speak, said that when invited by Mr. Dillon to explain to the members of the Builders' Exchange the apprenticeship system adopted by their association, the Sanitary and Heating Engineers, had no idea that it would be at a banquet such as this, before so many prominent members of the Builders' and Supplies Association of Ontario, and that he would be sitting at the top table beside so many eminent speakers. He said that he was not present to make a speech, but to tell, in his own simple way, the apprenticeship system.

Being one of a committee appointed to bring in recommendations for the betterment of the system, our first duty was to find out how many boys were actually employed in the trade in the city of Toronto, which was found to be between seventy and eighty. We then found, after several meetings with a committee from the journeymen's association, that the number of journeymen or mechanics required each year was approximately twenty-five to fill the demand.

All Were Canvassed

Every employer was canvassed to find if all the boys in their employ had sufficient education and the desire to follow up the business. Those employers who had not been employing boys were advised strongly to take at least one or two boys to learn the business, so that we should produce the required number of journeymen.

We then proposed that all boys taken on by employers should be given a six months' probation course. By this means the boy would know whether he would like to go on with the trade or not. Likewise the employer would know whether the boy had the qualifications to become a mechanic, and if he had not, the boy could be advised to try some other vocation. If, however, at the end of the six months the boy was satisfied to go on, and the employer felt that the boy had the necessary qualifications,

GEORGE CLAPPERTON
President of the Toronto Society of Domestic Sanitary and Heating Engineers.

the boy would be put under a card system of indenture.

Would Take Out Card

The idea would be that every master employing boys would take out a card supplied by the association. The employer would fill out this card as to when the boy started to learn the trade, and would include the six months' probation. If for any reason said employer felt that he could not keep said boy steadily employed, it would be his duty to try to locate the boy in some other shop. The employer would keep the card of indenture in his possession until the boy had finished his time. In the event of the boy leaving his employment for any cause, he could be handed his card, fully made out as to time served, and qualifications, which, in turn, would be handed to his next employer, and held by him, as stated above.

Must Ask to See It

To prevent boys from leaving one employer to go to another without sanction of previous employer, before any of the members can employ said boy, he must ask to see his card of indenture. If the boy produces this card it would be quite in order to give him employment, but if unable to do so, the employer must readily realize something is wrong, and he should make investigations.

It was recommended that every employer should be careful in the selection of boys to learn the trade. The boy should have a common school education and be of good moral character.

As the members are aware, every boy must pass an examination composed of a joint committee from the employers' and journeymen's associations before he is allowed to handle the tools. This examination can be taken at any time the employer feels the boy sufficiently advanced to do so. Every employer when employing a boy to learn the trade, must insist upon the boy attending the Technical School two nights each week, and if unwilling to do so, employer should take it for granted that said boy has not the real desire to fit himself to become a mechanic.

Will Have Assistance

After several meetings with Dr. McKay, principal of the Technical School, he has given us his assurance that his staff and himself will do everything in their power to assist the boys in procuring the much-needed technical education. These classes are open Wednesday and Friday nights of each week, and one hour each night is given to practical demonstration, the second hour is given to mechanical drawing, mathematics and physics.

We felt at this period that there should be some inducement for these boys to atend the evening classes. We therefore interviewed three of the larger operators in our business, Purdy Mansell, W. J. McGuire & Co., and Bennett & Wright Co., who kindly subscribed a sufficient amount of money to form an endowment fund to be invested and the interest of same given in scholarships, two scholarships to be given to the Technical Schools to be dealt with as they may see fit, and the other two to be given by our association to the boys with the best record for the term. We then wrote a personal letter to the parents of each boy, explaining to them what we were doing, and asking for their co-operation and influence to help

along the good work, and the replies we had from most of the parents gave us a great deal of encouragement.

Called a Meeting

We then called a meeting of all the boys in the different shops and had them addressed by the members of the committee who had had this work in hand, explaining to them our objects and the results that we expected. We then got the assurance of every boy that he would try to do his part. We are glad to say we now have these classes in operation and at the present time there are about seventy boys taking this educational course. If any one of you gentlemen could spare the time to visit our Technical School and see these seventy boys, and see the interest they are taking in the work, I am sure it would be an incentive for every branch of the building trade to follow our lead.

From Six to Ten

When we started to look into the apprenticeship problem, we found that the average journeyman turned out each year in our branch of the trade was from six to ten, and, like a good many branches in the building industry, we depended on immigration from other countries to supply the demand. We found many of these, especially the Old Country men, good mechanics, but no better equipped in regard to technical education than we were ourselves; and we think that is a reason that our trade was falling back in place of advancing. We seemed to have lost respect for ourselves, and, therefore, could not expect the respect of the public.

Our system may not be all that is required, but it is a beginning, we think, in the right direction, and can be improved on as we go along.

Will Ask $50,000 For Housing Scheme

Chesley, Ont.—At a meeting of the council called to discuss the housing question, Mayor Halliday gave it as his opinion that 85 per cent. of the cost of the lots and buildings to be erected on them was too high a percentage in a small town where values are constantly fluctuating. In a time of depression it might result in empty houses being on the hands of the corporation which had guaranteed the bonds. After considerable discussion a motion to request the council to loan up to 60 per cent. of the value of the lot and building was carried unanimously. The council will ask the Housing Commission to set apart $50,000 for building houses in this town.

Housing Plan Dead in Cape Breton

Sydney, N.S.—The Cape Breton council has decided to take no steps locally for the adoption of the Dominion-Provincial housing scheme. Some councillors said that, although the city of Sydney nearly a year ago complied with the provision of the act by appointing a local housing commission, nothing further has come out, and under the circumstances it would be a waste of time for the council to go through it again. The matter was dropped.

All Merchants Must Keep Books

New Bankruptcy Act Includes Advanced Insolvency Legislation—Comes Into Force on July 1—Provisions of Act Are Fair to All.

Ottawa, Feb. 14 (Special).—An order-in-council has been passed setting July 1, 1920, as the date on which the Bankruptcy Act, passed at the 1919 spring session, is to go into force. This act was passed after many years of fighting by those who considered that abuses had grown alarmingly under the old conditions. The bill was not allowed to go into effect at once, as it was desired to give the business community a year or more to adjust itself to the new situation.

There are several important features in the new Bankruptcy Act, which has been declared by merchants and others to be the most advanced piece of insolvency legislation on the continent.

It provides that all assignees must be appointed by the various Provincial Governments, and that they must be capable men, who will be bonded for the work they are to perform.

Open to Private Citizens

Another provision is that the benefits of the act are open to men in business, or private citizens, if the latter so desire to make an assignment. They may be declared insolvent if it is found that the circumstances warrant such action.

When a merchant has filed a statement showing his financial condition, his creditors can take action to have him declared insolvent, if his statement justifies this being done.

All Must Keep Books

Another important feature of the new act is that all persons carrying on business must keep books showing the record of all their transactions. This becomes compulsory from the date of the act coming into effect, on July 1 next.

In outlining the above features, which are of particular interest to business men, E. M. Trowern, Dominion Secretary of the Retail Merchants' Association of Canada, said that the news that the act was to be effective soon would be well received. As it passed the House, the measure had the support of business and professional men of all classes, and its provisions were equally fair to those in all lines of trade, as well as farmers and private citizens.

Iron Pipe Prices May Advance Soon

Montreal.—SANITARY ENGINEER understands that the present undertone of the pipe market is such as to suggest an almost immediate advance for gas and water pipe. An advance has been made this week for one line of unions and the continued strike of the market on old scrap suggests that new material will rule at high figures. It will not be surprising if another advance becomes effective in the immediate future. The undertone is decidedly strong and with a heavier buying season just ahead it will be interesting to watch the turns of this market.

Many Business Men Are on Committees

MONTREAL. — Standing committees for the year 1920 for the Montreal Board of Trade have been named, and among these are a number of prominent business men. The list is as follows: Executive—Geo. Summer, chairman; Hon. Lorne C. Webster, Wm. M. Birks, Arthur Lyman. Municipal Affairs—W. S. Leslie, chairman; A. M. Irvine, Clement H. McFarlane, Alphonse Racine, John W. Ross. Harbor and Navigation—Walter B. Ramsay, chairman; Graham Drinkwater, H. D. Dwyer, E. H. Hodgson, W. S. Leslie. Provincial Legislation—Alphonse Racine, chairman; Graham Drinkwater, Geo. W. Grier, W. S. Leslie, Clement H. McFarlane. Dominion Legislation—Clement H. McFarlane, chairman; R. E. Calder, H. D. Dwyer, E. H. Hodgson, Walter B. Ramsay. man; R. E. Calder, Geo. W. Grier, E. H. Hodgson, Walter B. Ramsay. Increased Membership — Graham Drinkwater, chairman; H. B. Henwood, A. M. Irvine, Alphonse Racine, John W. Ross. The following, previously admitted to membership, have qualified therefor: P. A. Curry, White-Star Dominion Line; W. F. Forbes, White-Star Dominion Line; Percival F. Gilford, Southern Sales Corportation; J. S. Dumont, Mile End Milling Co., Ltd.; Geo. S. Dingle, managing director, British Merchants, Incorporated, Canada.

TENDERS

Sherbrooke, Que.—The council plans to expend $300,000 during the coming summer on waterworks extensions.

Ottawa.—The Knights of Columbus will shortly call for tenders for new lodge building to cost $60,000.

Vancouver, B.C.—By-law for the building of an isolation hospital to cost $300,000 will be submitted in May.

Vancouver, B.C.—Plans are being prepared and tenders will be called shortly for erection of a $400,000 addition to the store of the Woodward Departmental Stores, Ltd. W. C. Woodward, manager.

London, Ont.—Erection of an apartment building containing 20 suites, to cost $100,000, is contemplated by John Hayman & Sons, Ltd., 432 Wellington Street.

Right to Fix Resale Price May Figure in Hamilton Investigation

If Manufacturers Have This Right Then Secret Commissions Act Makes It Illegal for Wholesaler or Traveller to Allow Rebate to Retail Trade—Board of Commerce Sitting Expected to Clear the Air—How the Act Reads

THE SECRET COMMISSIONS ACT MAKES SECRET REBATES ILLEGAL

"Everyone is guilty of an offence and liable upon conviction, on indictment, to two years' imprisonment, or to a fine not exceeding two thousand five hundred dollars, or to both, and, upon summary conviction, to imprisonment for six months, with or without hard labor, or to a fine not exceeding one hundred dollars, or to both, who

(a) being an agent, corruptly accepts or obtains, or agrees to accept or attempts to obtain, from any person for himself or for any other person, any gift or consideration as an inducement or reward for doing or forbearing to do, or for having after the passing of this Act done or forborne to do, any act relating to his principal's affairs or business or for showing or forbearing to show favor or disfavor to any person with relation to his principal's affairs or business; or

(b) corruptly gives or agrees to give or offers any gift or consideration to any agent as an inducement or reward or consideration to such agent for doing or forbearing to do, or for having after the passing of this Act done or forborne to do, any act relating to his principal's affairs or business, or for showing or forbearing to show favor or disfavor to any person with relation to his principal's affairs or business; or

(c) knowingly gives to any agent, or, being an agent, knowingly uses with intent to deceive his principal, any receipt, account, or other document in respect of which the principal is interested and which contains any statement which is false or erroneous or defective in any material particular, and which, to his knowledge, is intended to mislead the principal.

(d) Every person who is a party or knowingly privy to any offence under this Act shall be guilty of such offence and shall be liable upon conviction to punishment hereinbefore provided for by this section.

The latter clause was an amendment to the original bill which passed the Senate on March 31st of the same year. After being amended, it was sent back to the House of Commons and agreed to on April 21st and was finally sanctioned by the Senate.

Hamilton, Ontario. — (Special). — Among the chief topics of conversation among retail merchants is the proposed investigation in connection with the Wholesale Grocers' Association and the Retailers' Organization in Hamilton. The consensus of opinion is that the investigation of the alleged conspiracy will clear the air and show exactly what power the wholesale organization has and how far it can go in the matter of refusing to purchase from manufacturers that permit other wholesalers to cut the price of goods bearing an established price to the retail trade. It is more than likely that this point will come up in the investigation, together with the whole question as to whether manufacturers have the right to fix a resale price from wholesaler to retailer, and perhaps from retailer to consumer.

As mentioned in SANITARY ENGINEER recently, there has only been one occasion when this question has been before Canadian courts, and that was during the Wholesale Grocers' Guild case about eleven years ago. This point has been before the United States courts on many occasions. Sometimes the principle of the right to fix the resale price has been upheld by the courts, and sometimes it has not.

What Resale Price Means

If the manufacturer fixes the price from wholesaler to retailer, no wholesaler is allowed to sell for less than that price. If he does, it means that he or his travelling salesmen must give what is known as a secret commission or secret rebate; or else he must openly declare that he does not intend to keep the price. In the latter case he runs the risk of being cut off by the manufacturer.

A Hamilton retailer stated to SANITARY ENGINEER that there were many travellers of wholesalers that did offer these secret rebates. On one occasion a traveller from a wholesale house —not a Hamilton wholesaler—was selling him some goods. He purchased a carload of merchandise from him and intimated he would not require anything else. The traveller mentioned other lines, including cereals. The retailer knew he could not get any better price on them than he could from his own local wholesaler, so declined to buy. The traveller then pointed out there was a 5% discount for him on a certain cereal which the retailer knew was sold on the fixed price basis. He decided to take a number of cases. When the draft came through he noticed the 5 per cent. had not been deducted. He, however, paid the draft.

Traveller Offers Discount

The next time this salesman came along he refused to buy, pointing out that he had not been allowed the 5 per cent. The salesman was apparently surprised and stated he would have the matter fixed up. He then gave him another order for the same cereal, but the draft came through without the 5 per cent. deducted. He refused at first to accept the draft, and secured the information from the bank messenger that there were other retailers who were sending back the same company's drafts without acceptance. He, however, finally paid the draft. The salesman came back again. The merchant, of course, refused to purchase any more goods, and explained the reason. The traveller was more surprised than ever, and agreed then and there to pay the merchant the 5 per cent. discount out of his own pocket on the two shipments. This was refused, as the retailer in question did not believe in secret rebates, and had never accepted one. He would not ask a traveller for anything his house did not intend him to have open and above board. His idea was to draw out the salesman, to determine just how far he was prepared to go. He states he understands the traveller since signed a declaration, under oath, to the effect that he never offered anyone a secret rebate.

The above episode shows there are some merchants who apparently do accept rebates, and there are some wholesalers who, if not openly, through their travellers, allow them. The Secret Commissions Act, passed by the Dominion Government in 1909, makes it a criminal effence to give or accept a secret rebate or commission. This act is printed in connection with this article.

It is believed that an investigation into the affairs of the Wholesale Grocers' Association and of the Hamilton Retailers' Organization will clear the air and demonstrate distinctly just what can be considered business ethics in so far as the resale price question is concerned.

Quebec Builders' Exchange Active

Expected That $1,500,000 Will Be Expended in Accordance With Plans of the Housing Commission

CONSIDERABLE activity is manifest in the city of Quebec on the part of the Builders' Exchange. A sum of $1,500,000 has been allotted under the Government Housing Scheme, and builders of the city are anxious to have this money expended in accordance with the plan of the Housing Commission during the present season.

Committee is Formed

A committee known as a "Civic Progress Committee" has been formed, comprising lawyers, physicians, builders, and other representatives of many vocations. Each section is entitled to send two delegates to subsequent meetings, SANITARY ENGINEER understands, and they will work in conjunction with Dr. Nadeau, chairman of the Housing Commission. Dr. Nadeau has already been in Quebec and explained at a recent meeting the plans of the Housing Commission. At this meeting the Civic Progress Committee approved of the plan outlined and a further meeting was decided upon to consider the various clauses and elements of the proposed scheme.

The Builders' Exchange at Quebec seem to be in flourishing condition and as this method develops new material for membership, it is understood, will be solicited and secured.

Marshall Ecclestone Store is Destroyed

Timmins, Ont.—Fire, which apparently started from spontaneous combustion among the stock of oils in the basement, completely destroyed the big hardware store of Marshall, Ecclestone, Limited, causing a loss of $150,000. The loss is only partially covered by insurance.

The blaze spread with tremendous rapidity. The alarm was turned in a few minutes before noon, and by 12.30 the floors were falling in and soon after the walls went down.

The staff, as soon as the fire was discovered, made every effort to put it out with the fire extinguishers in the store, but were soon forced to retire by the heat and stifling smoke which poured from the basement.

The store was one of the finest in Northern Ontario, and only recently the basement had been extended to the full size of the building. Heavy stocks of hardware and furniture were carried on the first and second floors and on the third floor were apartments for members of the staff.

Hardware Firms Hit By Fire at Moose Jaw

MOOSE JAW, Sask.—Fire losses which may run into $100,000 were sustained by Morrison and Blackwood, wholesale hardware, and by the Moose Jaw Hardware Co., in a blaze which started in the basement of the Moose Jaw Hardwere building. The flames were noticed shortly after seven in the morning and made rapid progress. Morrison and Blackwood estimate their loss at fully $50,000.

Soo Is Doubling Its Housing Loan

SAULT STE. MARIE, Ont.—The City Council has decided to apply for $400,000 for building loans for the town if the Ontario Government decides to continue operation of the Ontario Housing Act this year. This is double the amount borrowed last year when seventy houses were built.

Fire, which started from a spark from a locomotive, caused a loss of $25,000 in the sash and door factory of Wm. Gerry & Sons, at London, Ont.

Does Not Approve of Housing Loans

Edmonton.—In regard to their request that the Government take advantage of the housing loan offered by the Dominion Government for the building of homes for workers, the Premier told the Alberta Federation of Labor that he was opposed to the scheme entirely. He did not think it at all feasible for a Government directly to lend money to the people, and, while such a proposition might be necessary in such crowded cities as are found in the Old Country, he could not see that it was at all necessary here.

NEW DIRECTORS APPOINTED

At a meeting of the directors of the Pressed Metals Company, Limited, the following were added to the board: Benjamin Lowenstein, president Nassau Smelting & Refining Company, New York; Morris Moskin, of Moskin Bros., New York; Edward Hay, late general manager Imperial Bank; W. R. Johnston, of Toronto; Eugene Coste, E.M., of Calgary.

The board previously consisted of C. E. Calvert, president; J. W. Leighton, vice-president; Simon Goldsmith, of New York; H. L. Nussbaum, of Toronto; J. R. L. Starr, K.C., Toronto; who remain, together with the men appointed.

SKATING ON THIN ICE

St. Louis "Star."

The Functions of a Board of Commerce

An Address Delivered Before the Members of the Dominion Board of the Retail Merchants' Association of Canada, at a Special Meeting in Ottawa, by E. M. Trowern, Secretary

WITH the advance of civilization a great many men recognized that much more could be accomplished for the improvement of trade conditions by consultation with one another, than could be accomplished by destructive and unfair competition. This desire produced the formation of craft guilds and a host of trade associations of various kinds. As these organizations grew in power and influence and improved their trade conditions, these conditions became conspicuous and stood out in open contrast with the conditions which prevailed under unorganized effort. Those who were not organized and those who suspected that these various guilds and trade organizations were formed for the purpose of overcharging and increasing prices to the public, but who had no means of knowing whether their suspicions were true or not, raised a public clamor, and this public clamor reached the ears of the politicians, and, with their usual astuteness to try and do something to catch the popular vote, the Conservative Party, on February 26th, in the year eighteen hundred and eighty-nine (1889), introduced an amendment to the Criminal Code, under the guidance of Mr. Clark Wallace, M.P., known as Section 498 of the Dominion Statutes, entitled: "Legislation to prevent Combines in Restraint of Trade."

The Object of the Measure

The object of this measure was to attempt to stop the operation of the various organizations, whether their purposes were good or bad. No tribunal was provided whereby an investigation could be made by those competent to know what the effect would be upon the general public of the various decisions that were arrived at by any commercial body, but the clauses in the Act were narrow, dangerous, meddlesome and unreasonable, and, like all other artificial attempts to interfere with the natural and God-ordained laws of trade, this legislation proved to be of no value to the public, but only a good source of revenue for the legal profession. Briefly, this legislation threatened all persons who were engaged in commerce who met together for the purpose of mutual protection with a summons to appear at the Police Court, and it gave every Police Magistrate in Canada power to charge them with violating the Act.

Laboring Classes Exempt

This dangerous piece of legislation, however, did not apply to the laboring classes, who were clever enough to see its real purpose, and they had a clause inserted as follows:—

> "Nothing in this section shall be constructed to apply to combinations of workmen or employees for their own reasonable protection as such workmen or employees."

The placing of this clause in the Act immediately created class legislation—the very thing that we are all endeavoring to be freed from—and the very fact that the above clause was inserted proved that the legislation was purely camouflage.

After reciting our views concerning this Act, it might very properly be asked by some retail merchants, what was our association doing in the matter to allow such legislation to pass? The answer is that all this occurred over thirty years ago, before the Retail Merchants' Association of Canada came into existence. It was legislation of this sort that proved the need of an association and hastened its formation, and although the association had not been formed at that time your secretary has a distinct recollection of appearing, as a retail merchant, before a special committee of the House of Commons, with a number of public-spirited Canadian citizens, among whom was that old highly-respected war horse who has helped to fight many commercial battles in his day, and who, I am pleased to say, is still active and at his post, Mr. Hugh Blain of Toronto, and after some strenuous arguments we succeeded in having several clauses inserted in the Act which removed, to a small extent, some of its dangerous features.

Meddlesome Piece of Legislation

During the entire thirty-one years that this legislation has been on the Statute Books, very few cases have ever been brought to court, and the principal ones have cost those who defended their action thousands of dollars, and the public to-day is in a worse position than it was before this meddlesome piece of legislation was enacted, and legitimate organization work among all commercial classes has been hampered, and trusts and monopolies abound greater than ever.

Through a counter agitation, which had been continuously made by various commercial classes, and particularly by our association, from the time that the afore-mentioned legislation was enacted, the politicians, true to their instincts, again placed their ear to the ground and heard the rumblings of discontent, and on May 10th, 1910, the Liberal Party placed an Act upon the Statute Books, through the Hon. Mackenzie King, which was known as "An Act to provide for the Investigation of Combines, Monopolies, Trusts and Mergers."

When this Act was introduced it also contained some clauses that would have seriously interfered with the operations of the retail trade, but fortunately our association had come into existence, and upon the presentation of our case we were accorded a respectful hearing and our recommendations were incorporated into the Act and it became law. We fully anticipated, however, that upon its passage the old Combines Act would be abolished, but in this we were mistaken, as we were again told that the "General public might become alarmed and the 'opposition' would strongly oppose its removal, and they would make political capital out of it," so the commercial classes of Canada had to content themselves with knowing that two pieces of legislation had been placed upon the Statute Books, both having the same object in view, but both of them diametrically opposed to each other.

Under the last mentioned legislation, although it contained some useful clauses, only one or two cases had come before the courts, although it was open for anyone so disposed to take advantage of the legislation. The difficulty was that while the Act was a reasonable and fair one, and quite an improvement on the former Act, no permanent machinery was provided to carry it out.

Commercial Conditions Disturbed

The chief fact, therefore, remains that both political parties considered that some legislation was necessary to control combines, monopolies, trusts and mergers, and they both provided legislation for that purpose, but both attempts proved of no value in providing a remedy—they only complicated and disturbed commercial conditions.

As soon, however, as the war broke out we were faced with new and extraordinary conditions, and we all willingly consented to all sorts of restrictions and curtailment of our personal liberty in order to free ourselves once and for all from the reign of the Prussian autocrat. In our eagerness and our desire to accomplish our purpose we were subjected, as it is well known, to some of the most unfair and uncalled for "Orders-in-Council," all having in view the fact that the retail merchant class instead of being the chief factors who were engaged in doing everything in their power to "keep the home fires burning," and notwithstanding that the official records show that from among our sons, clerks and drivers, etc., we represented the largest single class who took up arms—that we were out to deliberately take advantage of these brave and noble-hearted women who were not only suffering the mental and physical strain of having to take care of their little families without the advice and support of those brave men who were fighting for our liberty, but, in addition, we were the class who had to be especially legislated against.

Refused To Be Discriminated Against

These conditions existed until such time as we could no longer bear the accusations and annoyances, and by our strong condemnation of those Orders-in-Council, and our refusal to be improperly discriminated against, we succeeded in having the Orders that affected us the most severely annulled, and those who were appointed to operate them removed. While we were thus defending ourselves and endeavoring to preserve our place in the economic distribution of retail merchandising—some few classes in the community, together with those of the public press who were not familiar with our position, and who desired sensational matter to sell their publications—notwithstanding the fact that they require our advertising to enable them to live—were stating that we wished to avoid public investigation, and we, therefore, determined that we would ask the Dominion Government to appoint a special committee of the members of the House to make a full report on our position, as well as on the cost of living generally.

The committee was appointed and an exhaustive investigation took place, and I am pleased to say that the findings of the committee in no way showed that the retail merchants of Canada were guilty of taking undue profits or conducting their affairs in an improper manner.

Cost-of-Living Committee

For a great many years our association has been advocating the appointment of an Inland Trade Commission, consisting of capable business men who had practical experience in commercial affairs, and so we appeared before the special Committee of the House of Commons and urged again the appointment of such a commission. On page 723 of the Cost of Living Report, which sets forth the evidence which was presented asking for the appointment of such a commission, we stated among other things:—

> "We would suggest that the Board be comprised of five members: one manufacturer, one wholesaler, two retailers and a commercial solicitor."

The special Committee reported favorably and recommended that a commission be appointed, consisting of three members to commence with, and additional members to be appointed as occasion required. Legislation was introduced and very careful consideration was given to it as it passed through the various stages of the House of Commons and the Senate.

The manner in which the Bill was drafted gave us considerable concern as we saw great danger ahead for us if those appointed to administer the Act were unfamiliar with

practical, commercial transactions. We felt, however, that the Government would, in their own interests, see that properly qualified men were appointed on the Board or great discredit would be cast upon them, as well as upon the Act itself. It might be mentioned here that upon the passage of this Act, the Act which was placed upon the Statute Books by the Liberal Government, and which has been previously referred to, was repealed, and the Act placed upon the Statute Books by the Conservative Government still remains.

Wanted a Proper Trade Court

It must be remembered also that the reason for the passage of the Board of Commerce Act as understood by a great many members of the House of Commons and the Senate, as well as by the general public, was of an entirely different character to what we understood it, as members of our association. The public and others regarded the Act as a measure that would reduce the cost of living and prevent combines and mergers. The members of our association regarded it as a measure that would establish a proper court or tribunal for the adjudicating of all trade matters, similar to the manner in which the Railway Board deals with all matters concerning railways.

In the presentation of our case before the special Committee of the House on the Cost of Living when we were urging for the passage of the Act, the following statements appear in the printed report:—

> "We suggest that the proposed Inland Trade Commission should consist of competent, commercial persons, who shall be men of knowledge, experience in trade, manufacturing, wholesale and retail. We would suggest that all trade agreements made between any persons, firms, corporations or association engaged in the same or other lines of trade throughout Canada, in which the arranging of prices is concerned, should be submitted, with full reasons therefor, to the said commission for their examination and approval, and any persons, firms, or corporations who entered into such agreements without submitting them and having the approval of the Inland Trade Commission would render themselves liable to prosecution.
>
> "The formation of this commission would enable any person or persons to have commercial practices and complaints investigated, and practices which are found to be injurious to the trade, or contrary to public interest could also be investigated and decisions rendered thereon, similar to the decisions that are arrived at by the Dominion Railway Commission."

As soon as the Act became law, we immediately urged upon the members of the Government the necessity of appointing capable persons on the Board who had a complete knowledge of the retail trade. For some reason best known to the Government the three persons who were appointed, and who now constitute the Board, have had no practical knowledge of the manufacturing, wholesale or the retail trade, and although the laboring interests enjoy special privileges and are exempt from the operations of the Act, they pressed for representation on the Board and they were favored by having one of their class appointed, while the requests of the retail merchants were utterly ignored.

Endeavoring to Fix Profits

Administration of the Act up to the present time has proven that our fears were well grounded, and instead of the Act becoming a measure of strength to all the commercial interests, and something which the public would regard as a business men's court, they now see the harrowing spectacle of a group of three men, who are unfamiliar with the underlying principles of trade, endeavoring to fix the profits under which retail merchants should operate, and everything that they have so far endeavored to investigate has increased in price instead of decreasing, as those who are unfamiliar with the laws of supply and demand expected.

This brief outline of our position leads us to the following considerations:—

1. Should the Act be abolished entirely, or,
2. Should the manner under which it it is being operated be changed?

The reasons which we put forth as an association for the establishment of such a Board is, in our opinion, just as necessary as it was when the legislation was passed which created it. The chief thing that we require to do is to see that it is properly administered.

No Court Like It in the World

It is always a very unwise proceeding to attempt to criticize any action of any person or persons unless we have an amendment to put in its place, and we would, therefore, suggest that instead of the Board of Commerce attempting to meddle with the peculiar details of the various sections of trade, and acting in a manner unheard of by any properly qualified court in the world—that is, by the court laying a charge against an individual or a group of individuals, and after so doing they proceed to sit in judgment on the said supposed transgressor or transgressors whom they have charged, and then try a case that they themselves have been the means of accusing before the evidence has been heard. These proceedings are so unfamiliar to the Canadian public, and to the principles of all free men, such as retail merchants, and so contra to what we all understand and know to be British fair play, and which we all admire so profoundly, that it is a wonder it has been allowed to continue even so long as it has without being overthrown, which it seems is now about to take place.

Our answer to the two questions should, therefore, be, to the first question—Should the Act be abolished entirely? No. And to the second question—Should the manner under which it is being operated be changed? Yes. And, in order to present our views as to how we think the Act should be administered, we would suggest the following:—

1. The Board of Commerce should meet properly appointed committees from—
   The Canadian Manufacturers' Association,
   The Wholesale Merchants' Association, and
   The Retail Merchants' Association of Canada,
   and other organized, commercial industries, and secure proposals from them as to how the trades in which they are interested could be improved by proper regulation.
2. That instead of the court endeavoring to dictate to the commercial classes as to how they should conduct their affairs they should become a real court and decide on the evidence that is laid before them on any commercial matter, and in this manner their judgments will be respected.
3. That all agreements that are made, either by a group of manufacturers among themselves, or between the wholesale trade and the manufacturers, or between the manufacturers, the wholesalers and the retailers, should be laid before the Board of Commerce, and the parties thereof should appear, if necessary, and give the reasons why said agreements are made.
4. That all price contract agreements regarding trade-marked goods should be laid before the Board for final ratification.
5. That charges could be made to the Board by any person who was subject to unfair and unethical methods of trading, and the same could be investigated and a remedy enforced.
6. Persons should be dealt with who are engaged in unfair commercial practices whose methods are contrary to the public interest.
7. That if it was found that the operations of any commercial legislation that is now on the statute books is operating unfairly and not producing the results aimed at, that the effects of said legislation should be laid before the Board and if the Board decided that the complaint so laid justified a change in the Act they could make a recommendation to the Government.
8. The Board should strictly avoid interfering with the regular and natural channels of trade, and devote their time to seeing that the said proper channels of trade are not interfered with.
9. That they should investigate the reason for the increase of any commodity, commencing with the producer or manufacturer, and encourage the manufacturers to assist the Board.
10. That all classes of the community buying or selling merchandise should come under its operations.
11. That all agents and subsidiary agents in connection with the Board should be abolished, and that the Board itself should be the only constituted authority to take evidence.
12. That the Board should consist of five persons: one manufacturer, one wholesaler, one retail merchant, one farmer and one commercial solicitor or judge.
13. That all commercial, statistical reports should be under the direction of the Board of Commerce and removed entirely from the Department of Labor, or other Departments.

There are other important matters that could properly come under the direction of the Board, and we feel sure that every retail merchant in Canada is only too willing to give every possible assistance to raise the standard and elevate the commercial conditions of Canada.

Why do WE stand for it

Builders of Houses Will Suffer Loss

In connection with the recent assignment of one of the contractors who had done considerable work for the Housing Commission at Hamilton, Ont., Secretary Wm. Campbell, of the Commission, states that until applicants file agreements to have the Commission finish the houses, no work will be done.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

IMPORTANT advances in the price of many important commodities have taken place. Among these higher quotations are: Metallic siding, roofing and sundries for applying, pipe wrenches, pipe fittings, corrugated sheets and plates, wrought pipe, lead pipe, compression work and conductor pipe.

The exchange situation has shown no improvement and higher prices on some commodities are said to be the result. The tendency throughout the entire line is said to be for higher prices. Notwithstanding the high prices current, the demand for goods is a heavy one. Manufacturers state that many are stocking more heavily this year and that the volume of business handled so far has greatly exceeded that of the same period last year.

TORONTO, Feb. 13.—Important advances have taken place, affecting many important lines. Among these higher prices are: Stillson and Trimo pipe wrenches, metallic siding, roofing and sundries for applying; pipe fittings, corrugated sheets, sheets and plates, wrought pipe, lead pipe, compression work and conductor pipe.

The exchange situation has affected prices on some lines. Notwithstanding high prices current on many commodities, the demand is said to be very encouraging and a large turnover is expected during the present year.

Genuine Stillson Wrenches Are Higher

STILLSON WRENCHES, genuine, have been recorded at an advance price. The present new discount being quoted at 40 per cent. off the list. This commodity is effected by practically the same factors as other iron or steel tools which have recently advanced, namely the high rate of exchange and advanced cost of raw material and labor.

Trimo Wrenches and Parts Advance

TRIMO WRENCHES AND PARTS.—Higher prices have been announced on these wrenches, the new discounts be-in 32½ per cent. off the list; this is said to be due to the ever advancing cost of raw materials and is said to be in line with many commodities whose basic material is of iron or steel.

The high rate of exchange, also the slow movement of freight, is said to be a big factor for higher prices. Although the slow freight movements only affect the finished product indirectly, they have direct bearing on the cost of the raw material, it is stated.

Metallic Shingles Are Marked Up 5%

METALLIC SHINGLES have again been advanced 5 per cent. This new price is said to be the result of the ever-increasing difference in exchange rates. However, the demand continues despite the high prices and many are finding some difficulty in securing supplies of many commodities whose basic material is iron or steel.

The new price is: Galvanized metallic shingles, $10.50 per square foot, plus an additional 5 per cent.; while the sundries that go with this class of roofing have also advanced a further 5 per cent.

Metal Siding Again Raised Upwards

METAL SIDING.—A further advance is again noted on metal siding. This is said to be a direct result of the unsatisfactory exchange situation. The new price on this commodity is quoted as follows:

Galvanized metal siding, $9, plus an additional 5 per cent.

Scrap and Waste Materials May Advance

SCRAP AND WASTE MATERIALS.—During the past few days, scrap and waste materials of nearly all kinds have shown brisk movement, and it may be that the next two or three weeks will show higher prices. A number of buyers have been holding off, it is stated, in view of anticipated higher prices.

Dealers state that there is every indication of heavy buying movement in the very near future and state that they are looking forward to one of the best years in the history of their business. The present slow movement of freight is said to be causing some inconvenience for the present, although this condition it is believed, will soon adjust itself on the approach of warmer weather. The following are the present quotations:

DEALERS' BUYING PRICES

Pipe scrap	11 00
Stove plate, per ton	18 50
No. 2 busheling	13 00
Yellow brass	0 10
Red brass	0 15¾
Light brass	0 08
Scrap zinc	0 06½
Heavy copper	0 17
Wrought iron, No. 1, per gr. ton	15 00
No. 1 machinery cast	24 00
Heavy melting steel	15 00
Old rubbers, boots and shoes	0 06
Overshoes. lumbermen's rubber boots	0 04
Bicycle tires	0 01½
Automobile tires	0 03
Tea lead	0 04
Heavy lead pipe	0 06

Cotton Waste Scarce May Be Advanced

COTTON WASTE.—The present price of this commodity is said to be a firm one. Although present prices are unchanged, every indication points to higher prices in the near future. Waste seems to be no exception to other commodities and is said to be scarce. This is accounted for by manufacturers working in their short lengths with those of longer lengths, incidentally leaving a smaller quantity to be reclaimed.

The following are the present quotations:

WASTE

Cream, Polishing	0 25
White—	
XXX	0 21
XX	0 19¾
X	0 18¾
XC	0 16½
Japanese	0 16
XXX Extra	0 22½
XX, grand	0 21
XLCR	0 19½
X Empire	0 18
X Press	0 16½
X Special	0 15
Colored—	
No. 5	0 16¾
No. 1	0 15¾
No. 7	0 14¾
No. 1A	0 13¾
No. 1B	0 12¾
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0 10
Wool Waste—	Per lb.
Arrow	0 35
Axle	0 28
Anvil	0 22
Anchor	0 20

Pipe Wrenches, Stillson Pattern, Now 45% Off List

STILLSON PATTERN WRENCHES.—New and higher prices have been announced on Stillson pattern wrenches. The new discount is now being quoted at 45 per cent. off the list.

Soil Pipe Firm Remains Unchanged

SOIL PIPE continues to hold at a firm prices, although an advance in prices in the not distant future may take effect. However, it is hard to predict just what the future will show. Notwithstanding the high prices being charged in nearly all kindred commodities, the demand continues to be a heavy one, and many are looking forward to one of the best turnovers in their history, providing they can secure the stock to sell.

The following are the present quotations:

Medium and extra heavy soil pipe, 2, 3 5 and 6 in.	10%
Medium and extra heavy soil pipe, 4 in.	15%
Medium and extra heavy soil pipe fittings, 2 in. to 6 in.	25%
8 in. extra heavy pipe and fittings	5%

Enamelware Moving Well; Prices Steady

ENAMELWARE. — Prices remain steady. Many are carrying heavier stocks this year, it is believed, and manufacturers state that a larger volume of business has been handled so far this year in comparison with the same period of last year.

Quotations on some of the better known lines are as follows:

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	$37 05
Bath tubs, 5½ ft.	41 20
Lavatories—	
17x10" Apron F139 or P4045	11 05
18x24" Apron F154 or P3845 or P3847	17 00
18x21" Apron F169 or P4205	12 70
18x21" Roll rim F197, F199 or P4655-6	11 10
17x19" Roll rim F241 or P4345	9.05
Sinks, roll rim, 18 x 30 in.	16 60

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Pipe Fittings take 5% Stride Over Former Prices

PIPE FITTINGS.—Higher prices are current on pipe fittings. The new price is an approximate advance of 5 per cent. over former quotations. The new quotations are as follows:

PIPE FITTINGS

Cast iron fittings	5%
Plugs	17½%
Bushings	20%
Unions, ¼-in. to 2½-in.	35%
Do., ⅛-in. to 3-in. and larger	30%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%
Do., 4½-in. and larger	10%

MALLEABLE FITTINGS

	Black	Galv'd
Malleable Fittings, Class A, lb.	$0 60	$0 75
Do., Class B, lb. net	0 27	0 37
Do., Class C, lb. net	0 18	0 27

Corrugated Sheets Are Marked Up 5%

CORRUGATED SHEETS.—Manufacturers have advanced their price on this commodity 5 per cent. They claim that this was necessary on account of the high rate of exchange and may be effective till such a time as the exchange situation recovers to more normal figures.

The shortage of flat sheets is said to be causing inconvenience. This coupled with the freight and labor shortage helps to keep the situation of corrugated sheets in a very unsettled condition. Very seasonable demand is reported and manufacturers are looking forward to a large volume of business, providing they can get the materials to make the products out of. The following are the present quotations:

CORRUGATED SHEETS—	Per 100 sq. feet Galv'd	Painted
No. 28-gauge	$ 9 25	$ 7 75
No. 26-gauge	10 00	8 75
No. 24-gauge	15 00	11 00
No. 22-gauge	17 50	13 75
No. 20-gauge	21 00	17 50
No. 18-gauge	26 50	21 50

On shipments of 300 lbs. and over, freight is allowed south and east of and including North Bay; also several western counties in Quebec Province. Places north and west of North Bay, the freight is equalized on North Bay. For Quebec and Maritime Provinces, freight is equalized on Montreal.

Ad 5% to above list.

Sheets and Plates Have Advanced 50c

SHEETS AND PLATES have advanced 50 cents per 100 lbs. The scarcity of this commodity continues to be very noticeable and many stocks are exhausted. The mills are said to be making better headway with orders and some claim they could get more stock if the movement of freight were better.

The prices quoted here are nominal, and it may be found that some are charging prices at a variance to those shown below.

This, to some extent, may be expected, as warehouse stocks are practically cleaned out, and jobbers frequently have to go out to the local market to replace their stocks.

BLACK SHEETS

14 gauge	....	8 00
16 gauge	....	8 00
18-20 gauge	....	7 45
22-24 gauge	....	7 45
26 gauge	....	7 60
28 gauge	....	7 70
3-16 inch plate	....	....
¼-inch boiler plate	....	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$10 00	$10 60	$9 75	$10 45
U.S. 28	9 60	10 20	9 30	9 75
U.S. 26	9 30	9 90	9 05	9 40
22 and 24	9 15	9 75	8 90	9 20
18 and 20	9 00	9 60	8 75	9 00
16	8 35	9 45	8 60	8 80
12 and 14	8 20	8 70	8 20	8 55

Wrought Pipe Up; New List Herewith

WROUGHT IRON PIPE.—Advance has taken place on wrought pipe. This is said to be due to the shortage of skelp. The high rate of exchange is also said to have a direct bearing on the situation as considerable skelp comes from the U.S.A. The slow freight shipment, caused, it is believed, by the shortage of cars as well as the cold weather and heavy snow, is also said to be a factor.

It is hard to predict just what will be the future for pipe prices. The demand is said to be very heavy for this time of the year and every indication points to a very heavy anticipated demand for the coming season, and if skelp does not come to hand in larger quantities and other conditions improve great shortage may be noticed, it is stated. The following are the present quotations:

PIPE — WROUGHT
Price List No. 43 — Feb. 3, 1920
STANDARD BUTTWELD S/C

	Steel Black	Steel Galv.	Gen. Wrot. Iron Black	Gen. Wrot. Iron Galv.
⅛-in.	$6 00	$ 8 00	....	....
¼-in.	4 83	6 96	$ 5 31	$ 7 44
⅜-in.	4 83	6 96	5 31	7 44
½-in.	6 42	7 99	7 10	8 67
¾-in.	8 11	10 24	9 03	11 16
1- in.	11 99	15 13	13 35	16 49
1¼-in.	16 22	20 47	18 06	22 31
1½-in.	19 39	24 48	21 59	26 68
2- in.	26 09	32 93	29 05	35 89
2½-in.	41 24	52 07	....	....
3- in.	53 93	68 09	....	....
3½-in.	68 54	85 56	....	....
4- in.	81 21	101 37	....	....

STANDARD LAPWELD S/C

	Steel Black	Steel Galv.	Gen. Wrot. Iron Black	Gen. Wrot. Iron Galv.
2- in.	$29 79	$36 63	$33 49	$39 96
2½-in.	43 58	54 71	49 43	60 26
3- in.	56 99	71 15	49 43	60 26
3½-in.	70 38	87 40	79 58	96 60
4- in.	83 39	103 55	94 29	114 45
4½-in.	95	1 19	1 20	1 45
5- in.	1 10	1 39	1 40	1 69
6- in.	1 43	1 80	1 81	2 19
7- in.	1 87	2 36	2 34	2 83
8-L	1 96	2 48	2 46	2 98
8	2 26	2 85	2 84	3 43
9	2 71	3 42	3 40	4 11
10-L	2 51	3 17	3 15	3 81
10	3 23	4 08	4 06	4 90

Terms—2% cash discount if paid within 30 days. Approved credit.

Range Boilers Firm; May Be Advanced

RANGE BOILERS continue to hold at a firm price. Manufacturers state that the supplies of raw material are scarce and are selling at a high figure. This coupled with the high rate of exchange and other factors may result in higher prices for the finished product.

The following are the present quotations:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$12 00	$14 00
35-gallon	14 00	16 00
40-gallon	16 00	18 00
52-gallon	22 00	25 00
66-gallon	35 00	38 00
82-gallon	40 00	47 00
100-gallon	50 00	58 00
120-gallon	60 00	67 00

Lead Pipe Up 1c Lb.; Showing Good Demand

LEAD AND ZINC PRODUCTS. — Lead pipe has shown a further advance of 1 cent per pound. The tendency all down the list is for higher prices. The demand continues good and is said to be a heavy one for this time of year.

The following are the new prices:

Lead pipe, list, per lb.	$0 16
Lead waste pipe, list, per lb.	0 17
Do., over 8 inches, list, per lb.	0 18
Above subject to discount of 10 per cent.	
Lead traps and bends	add 10%
Lead wool, lb.	0 16
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, per lb.	0 12½
Cut sheets, ½ to ¾c lb. extra, and cut to size 1c lb. extra.	
Solder, guaranteed, lb.	0 43
Solder, strictly, lb.	0 40½
Solder, commercial, lb.	0 38
Solder, wiping, lb.	0 36¾
Solder, wire, lb.	0 44¼
Zinc sheets, per lb.	0 19

Compression Work Prices Advance About 5%

COMPRESSION WORK.—As predicted in last issue of SANITARY EN-

MUELLER

Lavatory Wastes

Standing Waste

A2081
Code—*Stawdee*

Specially designed to fill the need for a Standing Lavatory Waste, the MUELLER pattern A2081 is rapidly making a name for itself with the trade.

Positive in action, nickel-plated with plating that stands the wear it is subjected to, the initial trial always means re-orders.

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

In addition, the MUELLER Pop-up Waste, adjustable and easily fitted to any lavatory designed for a Pop-up Waste, has also been considerably in demand.

H. MUELLER MFG. CO., LTD.
SARNIA CANADA

Send for our Canadian Catalogue A

GINEER, compression work has been advanced, the new prices being approximately 5 per cent. higher.

Standard compression work is now quoted at 25 per cent. off the list. Compression bath cocks, 25 per cent. off the list, and compression basin cocks at 16 per cent. discount. Prices on other commodities, as shown on the following list, have been withdrawn.

Compression work, standard	25%
Fuller work, standard	34%
Bath cocks, compression	25%
Bath cocks, Fuller	34%
Flatway stop and waste cocks, standard	32%
Roundway stop and waste cocks, standard	32%
Brass steam cocks, standard	Net List
Globe, angle and check vales, standard	5-9%
Do., removable disc	7-10%
Radiator valves, standard	15%-23%
Do., removable disc	40-46%
Basin Cocks	
No. 0 and 1, Fuller pattern	34%
Compression	16%
Quick opening	34%

Conductor Pipe Has Been Advanced 5%

EAVESTROUGH AND CONDUCTOR PIPE.—A further advance has been announced on this commodity. This is said to be a result of the unsatisfactory high exchange rate and may stay in effect till such a time as the situation recovers to more normal figures. The following are the present quotations:

PIPE (Conductor)
Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10 ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

F.o.b. Toronto, Ottawa, Oshawa.
Net list.
Add 5% to above list.

Oakum Prices Firm; May Be Higher

OAKUM.—Prices on this commodity continue firm at unchanged prices. The demand is very good for this season of the year. Higher prices would not surprise many as the present tendency is upward.

The following quotations are current:

	Per 100 lbs.
Best American	$22 00
Clipper, spun	22 00
Do., unspun	20 50
Plumbers' spun	10 50

Boiler Tubes Firm; Remain Unchanged

BOILER TUBES continue to show very good demand, although jobbers state they are rather scarce. This is accounted for, it is stated, by the slow delivery of freight, which is said to be causing considerable shortages of raw materials. Skelp is said to be very hard to procure.

The exchange situation continues to be very inconvenient. As well as being the direct cause, in many cases, of higher prices, although the present price remains unchanged, the price tendency is very firm. The following are the present quotations:

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$27 00	$.....
1¼ inch	29 00	.....
1½ inch	29 50	.....
1¾ inch	32 00	27 00
2 inch	31 00	26 00
2¼ inch	35 00	28 00
2½ inch	43 00	32 00
3 inch	48 00	40 00
3¼ inch	.....	47 00
3½ inch	60 00	44 00
4 inch	75 00	56 00

Ingot Metals Show Little Movement

INGOT METALS.—The list, as shown below, are said to be showing little movement, the prices remaining unchanged. The exchange situation is said to be having considerable effect on the movement of these metals.

SPELTER remains at 12 cents per pound, showing no change in price, with a limited demand offering.

LEAD shows no change in price, although recent figures have been of a fluctuating nature. The quotations continue at 10½ cents per pound.

COPPER.—The present price of copper is quoted at 25 cents per pound.

TIN.—The market on tin continues to be quiet. The present price of 73 cents per pound is holding firm, although stocks are reported low. The high rate of exchange may account of some of the inactivity.

ANTIMONY. — Prices remain unchanged, the quotation being 12 cents per pound.

ALUMINUM remains quiet, quotations going are 34 cents per pound.

Soo Wants $400,000 For New Residences

SAULT STE. MARIE, Ont.—The City Council has decided to apply for $400,000 for building loans for the Sault if the Ontario Government decides to continue operation of the Ontario Housing Act this year. This is double the amount borrowed by Sault Ste. Marie last year under the provisions of the Act. Seventy houses were built here in 1919 by means of these loans. A considerable influx of population is expected this year, and houses are unobtainable now.

"You say, young man, that socks, shirts, underwear, handkerchiefs, and everythin' made of cotton hez riz? Whad d'ya s'pose is makin' cotton so scarce?"

"Epidemic of earache among the elephants at the circus!"

—Rehse in "Louisville Times."

New British Ruling Affects Exporters

The actual presence of an insurance policy among the documents incident to a "c.i.f." transaction is necessary in Great Britain in order to compel a purchaser to accept the consignment, the British High Court ruled recently in a decision of interest to exporters. Previously the submission of a certificate that the goods had been insured was all that customary procedure required.

The decision was to the effect that when goods were bought "cost, insurance and freight," the purchaser was not bound to accept the certificate of a broker, or anyone else, that they had been insured, but was entitled to call for the delivery of an insurance policy.

The ruling was the culmination of a suit brought against a purchaser who declined to accept goods because the insurance policy was lacking. His action resulted in a loss to the shippers, as the market had declined in the meantime. The shippers claimed that the acceptance of a broker's note or a certificate of insurance instead of an actual policy was allowed by custom.

Campaign Against Deceptive Advertising

NEW YORK, Feb. 14.—With the aid of the National Vigilance Committee of the Associated Advertising Clubs of the world, and local vigilance committees and better business bureaus of local advertising clubs, the War Department is inaugurating a campaign against the deceptive advertising and sale of goods by merchants operating what they call Army and Navy Stores.

At the request of B. A. Mattingly, chief of the sales promotion section of the War Department, the National Vigilance Committee of the Advertising Clubs has just issued a bulletin to local advertising clubs, pointing out some of the dangers to the public in connection with such operations, and suggesting action on the part of local committees. In part this bulletin is as follows:

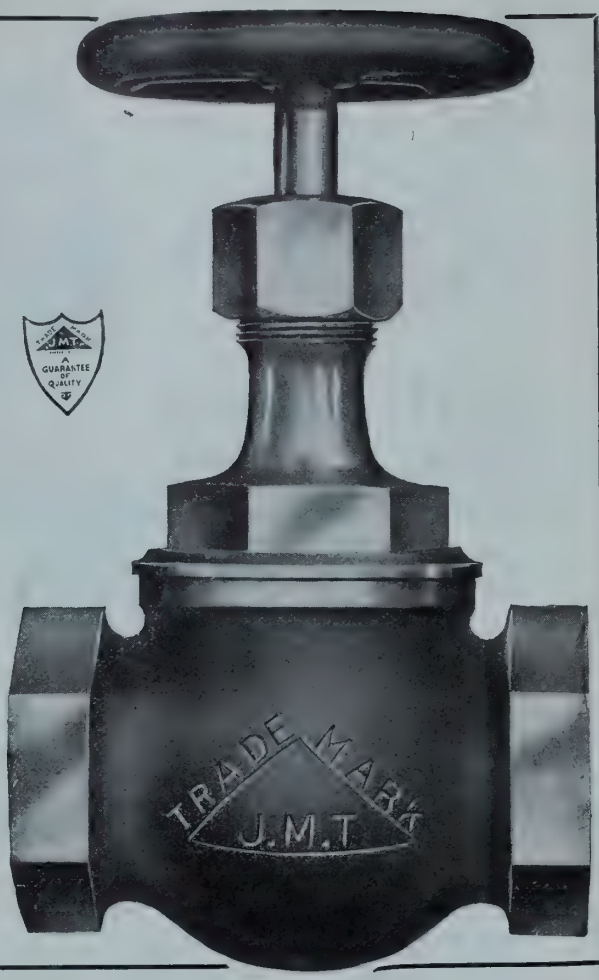
"The Government is retailing the surplus army and navy goods through its twenty-five stores distributed over the country, known as 'Army Quartermaster's Retail Stores Division.' Unscrupulous men are everywhere taking advantage of this situation, imposing their self-named 'Army and Navy Stores' upon an uninformed public. Only governments have armies and navies. The use of either of these words in the trade name of a store may create the impression at this time that such an establishment is an official outlet for Government goods."

You Can Flood Your Business With Prosperity Through

Morrison Valves

These efficient valves sell well because their reliability is so well understood and accepted that they are specified almost as a matter of course on the drawings for most all important contracts.

This enviable reputation not only helps sales, but builds prestige for your store. A full guarantee of satisfaction.



James Morrison Brass Mfg. Company
LIMITED
93-97 Adelaide Street West - - Toronto

Operates on natural laws.

Made in one piece without moving parts to fail or seams to open

ANTHES SYPHONS

Endorsed by sanitary engineers.

Specify Anthes Soil Pipe Fittings and Syphons every time, and you will procure both quality and service.

Anthes Foundry Co., Limited
Toronto and Winnipeg

The

Trade K—T Mark

K-T

FOUNDRY

GALT ONT.

STANDARD

Soil Pipes and Fittings are of pleasing design and good finish. They look good and they are good

SPECIALS

Range Boiler Stands are adjustable to 30-35-40 gallon boilers, and you can connect directly under the boiler. Inexpensive but flawless.

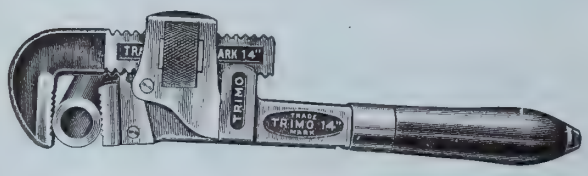
Your jobber can supply our goods--if you ask for them

TRIMO

The four good points that make TRIMO PIPE WRENCHES superior are the SPIRAL SPRING always in place, STEEL FRAMES that will not break, NUT GUARDS that protect adjustment nut and the INSERTED JAW in handle that can be replaced when worn.

The Trimo Steel Handle Pipe Wrench is also made in the 6", 8" and 10" size with narrow jaws and fine milled teeth, especially adapted for close work.

Your Jobber can Supply



Trimont Mfg. Company

Roxbury (Boston) Mass., U.S.A.

SE-MENT-OL

Guaranteed to Repair Leaks in Boilers and Heating Systems

Qts.-$4.00 Gal. $14.00

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Marietta, Ohio and Montreal, Canada

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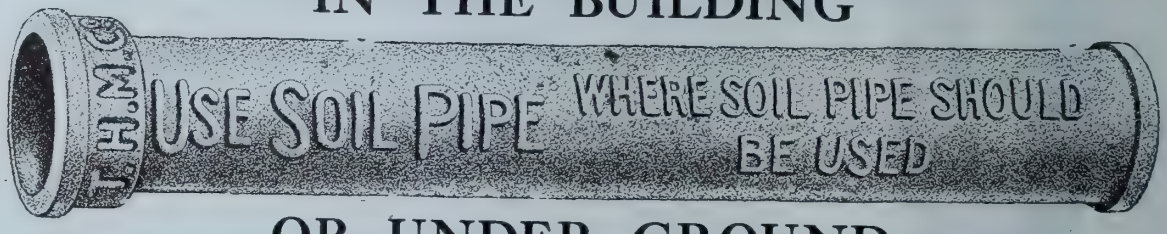


OR UNDER GROUND

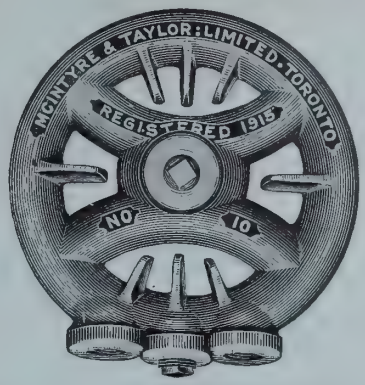
ASK YOUR JOBBER FOR T.H.M. CO. BRAND OF SOIL PIPE AND FITTINGS.

TORONTO HARDWARE MFG. COMPANY, - Toronto, Canada

WE MANUFACTURE A FULL LINE OF HIGH-GRADE RANGE BOILERS

M. & T. Coils

mean that perfect circulation is procured, that liberal waterways eliminate the possibility of chokage, all of which means durability and lots of hot water.



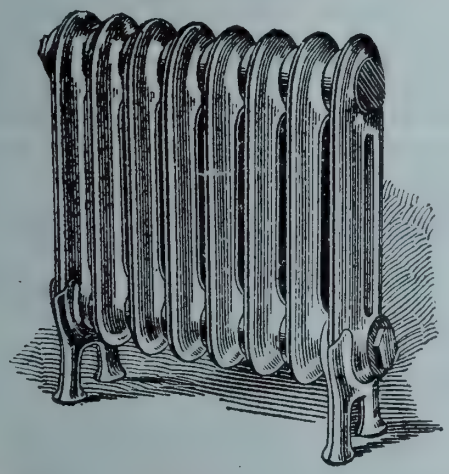
M. & T. Coils

are made of the best grey iron, free from sand or blowholes. Every coil is properly tapped with perfect standard threads and fully guaranteed.

McINTYRE & TAYLOR LIMITED
MONTREAL 55 St. Francis-Xavier St.
TORONTO 501-3 Queen St. W.
WINNIPEG 156 Lombard St.

Press Steel
Steam and Hot Water
Radiators

A Bargain while they last. One size only. Make an offer.



Radiators made by American Pressweld Co. of Detroit. Press steel and welded standard steam or water radiators, eight section, 18 inches high, single column, ⅛ inch air vent opening. These are absolutely new and guaranteed perfect. Wholesale price laid down in Canada, $9.50. **Must be cleared at once. Write and make an offer.**

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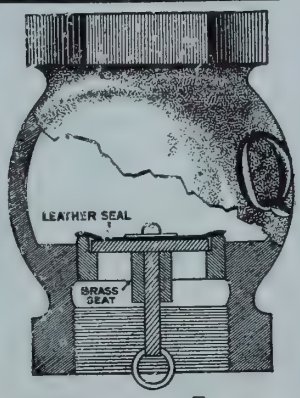
615 Yonge St., Toronto



This is a "Q" Foot Valve

And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

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GALT., CANADA

Sanitary Engineers—

We manufacture ONLY white metal alloys. Therefore by using our products you get the quality which goes ever with specialization.

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Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
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HUMIDIFYERS
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Eliminates Costly Mistakes

Allpriser Service

Prevents mistakes concerning cost and selling price. Men don't make mistakes when they know! Mistakes are made unconsciously. With Allpriser Service men know.

Allpriser Service consists of a flexible leather bound book 7 x 9, of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest changes. Allpriser Service is only $25.00 annually.

It eliminates losses, unnecessary overhead, and Confusion of cost data. Don't sell 12c articles at 10c; use Allpriser and know costs.

Kenneth B. Allison 668 Yonge Street, Toronto

WROUGHT PIPE

BLACK and GALVANIZED SIZES, 1/8 IN. TO 4 IN.

All our pipe thoroughly inspected, tested to 600 lbs. hydraulic pressure and branded.

All Sizes of NIPPLES (Black and Galvanized)

Ask your jobber for CT *Brand of Wrought Pipe*

CANADIAN TUBE & IRON CO., LIMITED, MONTREAL
Works: Lachine, Can.

CANADIAN CONSOLIDATED RUBBER CO. LIMITED
DOMINION RUBBER SYSTEM
AND ASSOCIATED COMPANIES

PLUMBERS AND SANITARY ENGINEERS

More and more, plumbers and sanitary engineers are learning that Dominion Rubber System products can be relied on to give the utmost service.

What's more, the Dominion Rubber System range of supplies for their particular needs is so complete that everyone can be easily satisfied and at a minimum of cost.

If **you** have not experienced these advantages, it will pay you to investigate and see for yourself how reliable and economical Dominion Rubber System products really are. Distributed to the trade through Dominion Rubber System branches throughout Canada and sold by the best stores.

DOMINION RUBBER SYSTEM LIMITED

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Quebec	Brandon
Montreal	Regina
Ottawa	Saskatoon
Toronto	Calgary
Hamilton	Lethbridge
Kitchener	Edmonton
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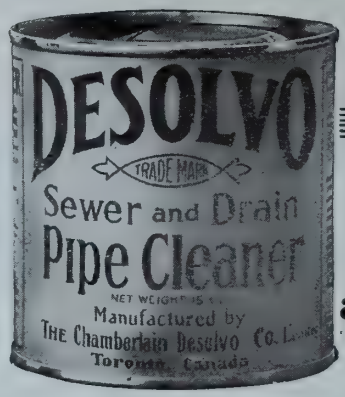
North Bay	Victoria



Clears Clogged and Frozen Pipes

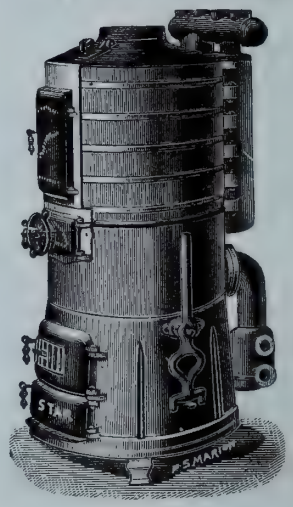
That's Why It Sells

Desolvo thaws frozen pipes because when mixed with cold water it creates heat in addition to its own action. It clears clogged pipes easily and without the aggravating and expensive tearing up of house and grounds. It has many points of appeal to customers, pays a good profit and sells easily and often.

The Chamberlain Desolvo Co., Limited
110 Church St., Toronto [General Office: Pittsburg, Pa.

Eastern Representative: Richardson & Bureau
55 St. Francis Xavier St., Montreal.
Ontario and Western Representative: G. L. Mayne, 99 Quebec St., Toronto.

Thousands of Star Boilers in Use requiring repair Parts



It will be a long time before folks forget the coal troubles of the last few seasons.

The principal feature of the Star Boiler is that no other round hot water boiler has any coal-saving improvement not embodied in the "Star."

Then, too, while boiler installation and repair time is here, why not stock up with Star parts, for which O. Belanger has taken over the rights and is now making?

Many thousands of Star Boilers are in use requiring these repair parts hitherto unobtainable.

Write to us at once in time to catch the season's business.

We guarantee prompt deliveries.

O. BELANGER, REG'D.
Amherst Street
MONTREAL

It's Just Common Sense!

MANY a man will put a wise look on his face and say, "You *can't get something for nothing in this world.*"

Then, like as not, he'll turn around and try to buy something as good as "X" Boiler Liquid—for less money!

Isn't it too bad that his wisdom doesn't go *far* enough?

Wouldn't you think he'd know that any amount spent on an article that *didn't make good*—is money wasted?

"X" maintains its DOMINATING position as the biggest selling Boiler Liquid not because it is the original—but because it does its work *right.* It has done over $3,000,000 in repair work—for over 28,000 plumbers and steamfitters.

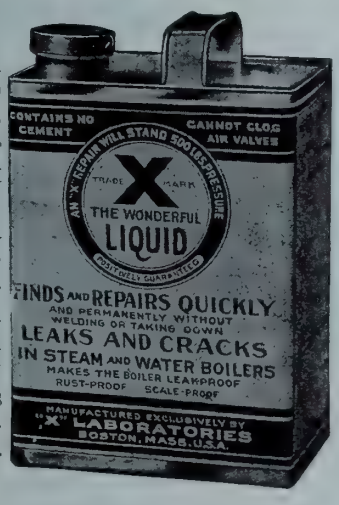
"X" Liquid makes a permanent repair. It is a scientific process for keeping boilers—and entire hot water heating systems—LEAK-PROOF — RUSTPROOF — and SCALE-PROOF. By eliminating and preventing Rust and Scale "X" keeps the boiler more efficient and *saves coal.*

One can will do a $200 repair job in 30 minutes; and make a repair that stands 2000 *pounds pressure.*

Imitations of the genuine "X" Liquid *cause foaming.* "X" Liquid *prevents foaming.*

Stick to the genuine. The big "X" is plainly marked on every can. It is there for your protection. Ask for "X" Boiler Liquid by name.

The United States Government uses "X" Liquid. It is used and recommended by 99 out of every 100 manufacturers of boilers and radiators. *Your* jobber sells it.



Get It To-day. Be sure to get the original

"X" LABORATORIES

25 W. 45th St., New York City

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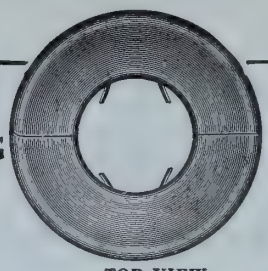
OPEN VIEW NO. 10-A

The CEILING PLATE that's better



TOP VIEW NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾" WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.

Gem No. 4.

Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.

New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

GENUINE

ARMSTRONG STOCKS and DIES

Hinged Pipe Vises *Pipe Cutters*
Pipe Threading Machines

—MANUFACTURED BY—

THE ARMSTRONG MFG. Company

317 Knowlton Street BRIDGEPORT, CONN

248 Canal Street NEW YORK

"BC" COMBINATION COLD ROLLED STEEL Floor and Ceiling PLATES

Carried by the leading supply houses

No. 1

Put just the right finish on that heating job

Send for catalog of complete line of "B. & C." goods.

No 1 Valve

Stock carried by our Canadian Representative W. H. CUNNINGHAM & CO. 183 Church Street Toronto, Ont.

The Beaton & Corbin Mfg., Co. Southington, Conn., U.S.A. The Old Original Company

"HAUSE" PIPE JOINT CEMENT

For steam, water, air, oil, gas, gaskets, etc. The cement that cements. Sets like gum. Allows no leaks.

The Great Value of "HAUSE PIPE JOINT CEMENT" lies in its peculiar chemical properties which permits of its hardening and expanding after the joints are made up. In making up joints it has the same effect as a lubricant on the best graphite, and while the joints may be made and broken readily, a perfectly tight joint is maintained at all times. Comes in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans, 100-lb. barrels. Manufactured in ready mixed and powder form. Ask your jobber for prices, or write us direct.

Made in Omaha, Neb., U.S.A.

Manufactured in Ready Mixed and Powder Form.

Canadian Distributors:

Empire Manufacturing Co., Limited

LONDON and TORONTO

CRANE FLANGED FITTINGS

CRANE LIMITED

HEAD OFFICE & WORKS
1280 ST PATRICK ST

MONTREAL

BRANCHES: Toronto, Winnipeg, Vancouver.
SALES OFFICES: Halifax, Quebec, Ottawa, Calgary.

BOOKS

on all branches of Engineering and every conceivable subject. Second-hand at half prices. New at lowest prices. State wants and send for Catalogue No. 23, post free.

WE HAVE THE BOOKS YOU WANT

Books Bought. Best Prices Given.

W. & G. FOYLE, Ltd.
121-125, Charing Cross Road, London, England.

CONDENSED ADVERTISEMENT

FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

When Writing Advertisers Please Mention Sanitary Engineer

WE CARRY A FULL LINE OF

BOILERS, RADIATORS, WARM AIR FURNACES AND REGISTERS

HAMILTON STOVE AND HEATER COMPANY, LIMITED, HAMILTON, CANADA

When writing advertisers please mention that you saw their advertisement in the SANITARY ENGINEER.

Pipe Fittings

Made in Canada

The Brand that has the Quality

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

CAST IRON FITTINGS

With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS

With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

There Are Lots of Gate Valves

Advertised and Sold

but not all of them possess that neat appearance, combined with strength and stability, which characterizes

KERR IRON BODY GATE VALVES

Specify KERR'S (KEYSTONE) Iron Body Gate Valves on your next order, and let us prove what we claim for them.
Our Catalogue No. 5 tells all about them. It is yours for the asking. Write us to-day.
Approved by the Fire Underwriters' Association, and Registered by Boiler Inspection Departments of Ontario, Saskatchewan and Alberta.

THE KERR ENGINE COMPANY, LIMITED - Walkerville, Ontario

THE VITRO COMBINATION

Good Appearance
Plus Guaranteed Service

The VitrO is an All-One-Piece Tank. The absence of seams and joints renders it absolutely leak-proof.

The white enamel finish makes it a decidedly attractive fixture in the modern bathroom.

The VitrO oak and mahogany combinations are equally attractive.

This variety in design makes it easy to have this tank installed in either the modern or old-fashioned home.

WE guarantee that should a VitrO Tank at any time prove defective through either material or workmanship, a new one will be given to the plumber by the jobber from whom he purchased it. In no case will credit be given to the jobber until the defective tank is returned and examined, and when a tank is returned same must be complete with all fittings; otherwise, credit will be given based only on the value of the goods returned.

Exception

This guarantee does not apply to defects caused by carelessness or abusive wear and practice.

Note

A VitrO Tank must not be returned because of a defective fitting or cover. A defective fitting or cover will be replaced at once; however, the defective one must be returned for examination.

When tanks are broken in transit, claim must be made against the Railroad Company.

WRITE FOR DESCRIPTIVE LITERATURE

Galt Brass Company, Limited

Galt - Canada

Sanitary Engineer
Plumber and Steamfitter of Canada
VOL. XIV. PUBLICATION OFFICE, TORONTO, MARCH 1, 1920 No. 5

Empire Quick Pression Basin and Shampoo Cock

Here is an Empire sanitary fixture which for attractive design and simplicity of operation is a valued asset in a barber's shop.

It is designed to fit any size lavatory and water can be run from the shampoo outlet or for the basin without the necessity of turning on or off two or more taps.

All the cocks are on the quick pression principle insuring absolute shut-off and durability.

It is a time-saver especially constructed to meet every requirement for barber shops.

It is efficient, durable and sanitary as all Empire fixtures must be before they leave the factory backed by the Empire guarantee.

Write for our catalogue.

Empire Manufacturing Company, Limited

LONDON AND TORONTO, CANADA

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, Nova Scotia

AGENCIES:

ONTARIO:
Monarch Brass Mfg. Co., 71 Brown St., Toronto

MANITOBA and NORTHWEST:
E. B. Plewes, 120 Lombard St., Winnipeg

TINKER TOM'S TALKS.

No. 248

Corrugated Sheets

CANADA USES MORE CORRUGATED GALVANIZED SHEETS PER INHABITANT THAN ANY COUNTRY IN THE WORLD. THIS IS LARGELY BECAUSE THE CANADIAN FARMER HAS LEARNED TO DEPEND UPON THIS—

Strong, Fire-Proof Storm-Tight Covering

WHICH PROPERLY APPLIED GIVES IMMUNITY ALSO FROM LIGHTNING DAMAGE.

Reliable and Established Makers of Galvanized Corrugated Sheets:

PEDLAR PEOPLE, LTD., Oshawa, Montreal, Toronto, Ottawa, Winnipeg.
GALT ART METAL CO., LTD., Galt.
METAL SHINGLE & SIDING CO., LTD., Preston, Montreal, Toronto, Winnipeg, Calgary.
METALLIC ROOFING CO., LTD., Toronto, Winnipeg.
McFARLANE-DOUGLAS CO., LTD., Ottawa.
WINNIPEG CEILING & ROOFING CO., LTD., Winnipeg.
CROSSEN METAL WORKS, LTD., Winnipeg.

TINKER TOM.

Look for Talk No. 249 next issue

DOMINION SHEET METAL CORP. LTD.
MADE IN PREMIER CANADA
HAMILTON. CANADA.

SANITARY ENGINEER, March 1, 1920, Vol. XIV., No. 5. Published 1st and 15th of every month at 143-153 University Ave., Toronto, by the MacLean Publishing Co., Ltd. Yearly subscription price, Canada, $1.00; United States, $1.50; Great Britain and the Colonies, 4s. 6d.; elsewhere, $2.00. Entered as second-class matter at the Post Office, Ottawa. Entered as second-class matter July 1st, 1912, at the Post Office at Buffalo under the Act of March 3rd, 1879.

SALE OF MILITARY AND OTHER GOVERNMENT STORES

Equipment and Supplies for Hospitals, Institutions, Bunkhouses, Camps, Dining-Rooms, Kitchens, etc.

Bedsteads, Furniture, Hardware, Dry Goods, Rubbers, Overshoes and other Footwear, Blankets, Sheets, Pillows, Baskets, Woodenware, Brushes, etc.

CONSTRUCTION EQUIPMENT AND MACHINERY—AMBULANCES.

The Stores are located at various places throughout Canada

Instead of or in addition to sales by sealed tender

PRICE LISTS WILL NOW BE ISSUED

for most articles—the goods being offered in lots for purchase by wholesale houses, jobbers, and the trade generally.

TRADE ONLY SUPPLIED

except that arrangements previously announced for sale to returned soldiers and sailors and widows and dependents of same through the G. W. V. A. and similar organizations and to hospitals and philanthropic institutions will be continued.

SALES WILL CEASE IN MARCH. Any balances left will be cleared by public auction shortly thereafter. This advertisement will not be repeated. Those interested should therefore apply AT ONCE for price lists and other information to the

SECRETARY OF THE WAR PURCHASING COMMISSION, BOOTH BUILDING, OTTAWA

February, 1920

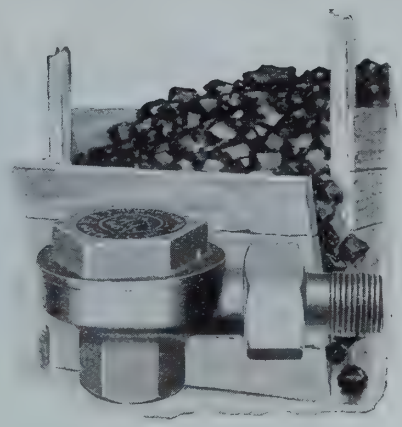
The trap that keeps the radiator hot

Any kind of a boiler will shove the steam up to a radiator. But it takes a mighty good trap to let all the air and water out without letting steam into the return line.

The Dunham Trap has been doing it since 1903—and doing it so well that you don't see many old-style traps nowadays. Everybody is busy pushing thermostatic disc traps. But do not forget that the Dunham was the FIRST radiator trap of this type.

The **first** of its kind—and the **best** of its kind according to many, many engineers, and to architects and heating contractors who know that quality counts above all else.

Our new booklet, "Data on Dunham Heating" tells some heating facts in an interesting way. May we send you a copy?



The Dunham Radiator Trap

The DUNHAM HEATING SERVICE

Made in Canada

C. A. DUNHAM COMPANY, Limited, Toronto, Ontario

HALIFAX OTTAWA VANCOUVER MONTREAL WINNIPEG CALGARY

London: 64 Regent House, Regent Street, W. 1

Jenkins Valves

JENKINS BRASS "WHISTLE" VALVES

STOP WATER WASTE

At bakeries, in the departments where fruits are washed and prepared, Jenkins Brass "Whistle" Valves are installed on hot and cold water supply lines to stop water waste.

A pull of the lever instantly permits a free full flow of water which is automatically shut off by means of a spring as soon as the lever is released.

Jenkins Brass "Whistle" Valves are extensively used in bath houses, garages, restaurants and factories, and, doubtless, numerous other uses will occur to you for these substantial, quick opening valves.

Know Jenkins Valves by the Jenkins "Diamond Mark"

Catalog No. 8 free on request.

JENKINS BROS.
LIMITED

Head Office and Works:
103 St. Remi St.
Montreal, Can.

European Branch:
6 Great Queen St.
Kingsway
London, W.C. 2, Eng

Agencies in all the Principal Countries of the World.

The Canadian Society of Domestic Sanitary and Heating Engineers

President	*Vice-President*	*Secretary-Treasurer*
FRANK R. MAXWELL	HARRY MAHONEY	GARRETT F. FRANKLAND
TORONTO	GUELPH	TORONTO

LEAP YEAR

Custom tells us that Leap Year gives the right to the ladies to request the hand of their beau, if being bashful, he has not the courage to pop the eternal question.

The Canadian Society of Domestic Sanitary and Heating Engineers has patiently waited for you to embrace her; she has appealed to you; she has wooed you; she has given you every opportunity to take the necessary step, but still you have hesitated.

You seemingly have lacked initiative, or maybe you were not confident like the bashful beau, that you were fit to woo membership in the Canadian Society of Domestic Sanitary and Heating Engineers.

For, whatever the reason you have hesitated, just hearken to the trend of the times—the need of organization and co-operation.

"1920 is Leap Year, because February has 29 days."

1920 is the year of Canada's opportunity. The year of your opportunity because you are in Canada, and let us make it the year of opportunity for the Canadian Society of Domestic Sanitary and Heating Engineers.

Delay no longer; she approaches you with arms wide open, extending to you fellowship and all it stands for.

Become one of us, Mr. Sanitary and Heating Engineer, wherever you may be throughout our Dominion, and let us together, by the co-operation most essential to progress, partake hand in hand of our united endeavor, those accomplishments which are our just due, by forwarding your name for membership to the Secretary at once.

ALL FOR ONE and ONE FOR ALL

Yours for co-operation,
FRANK R. MAXWELL,
President

Address all communications to
GARRETT F. FRANKLAND,
Secretary-Treasurer
Room 303, 22 College Street,
Toronto, Ontario

How Close It Comes to "Heating All Out-Doors"

Say, folks, there's something kind of homey like about those words: "heating all out-doors."

It takes me back to when I was a kid and Maw used to be forever "airing out" the house.

It sort of got Dad's goat.

He'd come in a bit grumpy and say tart like to Maw: "Say, Sis, what you trying to do, heat all out-doors?"

Come to think about it, we had a Burnham Boiler in them days, too.

Had it, because Dad said: "if a boiler could heat a greenhouse economically, which is next to heating all out-doors, I figure it will heat our home mighty satisfactorily like."

And it did.

And it still does.

And as I said, that was what Dad said the Burnham would do.

Furthermore he said it, close on to a quarter of a century ago.

Which is about all I have to say just now.

But the next time I'm going to be introduced to all of you in my real name of Booster Binx.

Till then, kindly keep Mum, what I've told you.

Lord & Burnham Co. Limited of Canada

ROYAL BANK BUILDING, TORONTO

Factory: St. Catharines, Ont.

Burnham Cosy Comfort Heat

BB

IS THIS THE SOLUTION?

Another scheme to rectify the distressing prices now prevalent, by other than sound economic measures, was outlined before the Union of Canadian Municipalities which recently convened at Kingston.

THIS RESOLUTION HITS YOU WHERE YOU LIVE

"We submit the principal root of the evil is the present wasteful, inefficient and antiquated method, or rather lack of method, of distributing the goods from the producer and manufacturer to the consumer—wasteful of time, labor, health, happiness and even human life—inefficient and antiquated in this age and to such an extent that even the huge economies effected by the greatest array of labor-saving machinery the world has ever seen are in a large measure rendered null and void. An ever-increasing army of unregulated distributors and relatively an ever-decreasing army of producers with the leaders of all these practising profiteering and price-manipulation as their fancy may dictate or opportunity may permit.

"Among the minor causes are the various classes of idlers and usurers, who in devious ways levy toll on labor and industry. Waste of time in high schools and colleges teaching dead languages and other unpractical subjects to the partial or total exclusion of vocational training, economics and useful branches of learning which would be of greater value for purposes of mind development and discipline and thereafter more useful to the individual and the country."

SAYS THE FINANCIAL POST IN REPLY:

"It is, of course, possible that there might be a dissenting voice, heard above this chorus of condemnation. A voice that might suggest, for instance, that the fact that the producer is getting $24.50 per hundred for hogs, where he formerly got $6, might, perhaps, have as much to do with the matter of increased cost as the inefficient handling that gives to the packer 5-16 of a cent per pound on bacon, or to the retailer a bare 5 cents a pound. Or the fact that the farmer is now guaranteed a price of $2.15 a bushel for wheat that formerly he sold with satisfaction for 90 cents, may be as much responsible as the half cent a loaf profit of the baker, or the cent profit of the retailer.

"It is a question, too, whether all the blame for the trying conditions of the present time should be laid at the door of established trade, any more than at any other door. There seems no good evidence for believing that the business morals of the merchant class are worse than any other, and there might be those who might reply to the stricture that our schools and colleges are not devoting their attention strongly enough to the bread and butter needs that "man does not live by bread alone."

The frank object of this resolution was "to attain a substantial reduction in the cost of living generally, but without increase of hours of labor or reduction of wages." It is the possibility of this which THE FINANCIAL POST doubts.

You want to read such discussions as this. They appear weekly in THE FINANCIAL POST.

ALSO OF INTEREST

Prospects Good For Trade With France—An article giving hints re exporting.

Is State Socialism Bolshevism?—Dakota's experience.

Deaf to a Wrong Majority—A comparison between Charles A. Dana and present day editors.

The Open Air Market—if it Rains—indicating where this latest scheme for abolishing wholesaler and retailer will fail.

Wheat Problem Has National Significance — A clear presentation of the present complicated situation affecting not only the milling and allied industries, but the financial well-being of the country.

Should Profit by Experience—An editorial on the Toronto municipal abattoir, of interest to all students of municipal government.

Week after week THE FINANCIAL POST deals with such questions. This is a paper treating of finance in a broad way. It gets behind the figures to the facts which shape the figures. It will help you to that sane understanding and balanced viewpoint necessary to the leaders in each community.

Subscription price $3.00 per year (52 issues).

THE FINANCIAL POST

143-153 UNIVERSITY AVE., TORONTO

MONTREAL WINNIPEG

Annual Subscription $3.00.

THE FINANCIAL POST OF CANADA,
143-153 University Ave., Toronto.

Please enter me a regular subscriber, commencing at once. I forward enclose $3.00 to pay for my subscription for the first year.

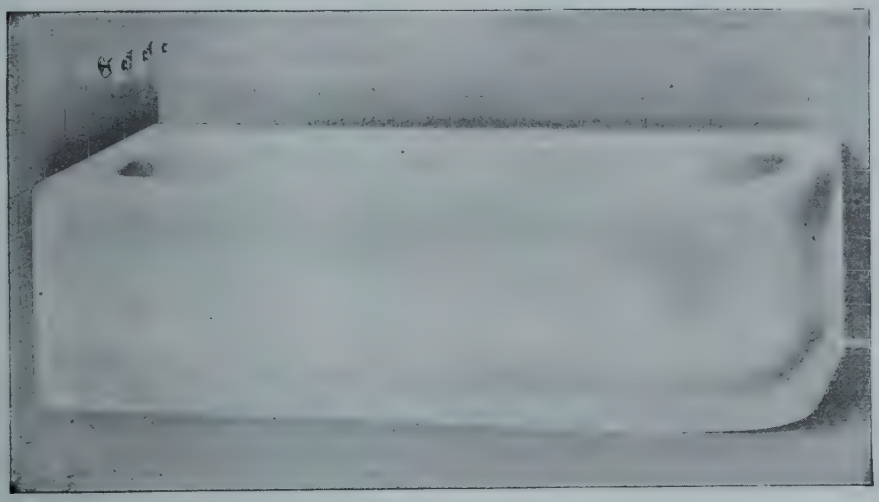
Name.....

Address.....

Please write plainly

"Standard"
"Perfection" Built-in Baths

Made in One Piece Enamelled All Over



These Baths represent the last word in design and finish, and are made to build into Right or Left Hand Corner or into a Recess.

The "Perfection" Built-in-Bath is only 17½ inches high, therefore convenient. It builds into walls and floors, the absence of all dust-collecting cracks and corners meaning bathroom sanitation.

Made in 5 and 5½ foot sizes.

Illustrations on request.

Write the nearest dealer

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ontario

Toronto Store:
55-59 Richmond Street East

Winnipeg Showrooms:
76 Lombard Street

Hamilton Store:
20-28 Jackson Street West

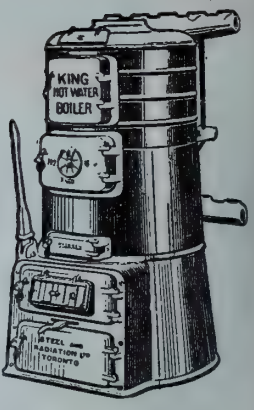
Montreal:
358 Beaver Hall Square

Calgary:
325 Eighth Avenue West

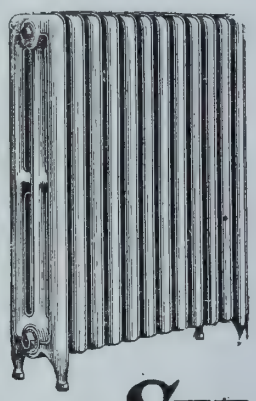
Vancouver:
847 Beatty Street

"MADE IN CANADA"

KING HOT WATER BOILERS AND IMPERIAL RADIATORS



A Satisfactory Heating System



You can't afford to "take a chance" with satisfying your customers. There is nothing so valuable to you for future business as to have them know you supply the best. You can make every Heating System you install a "talking point" for your service if you use a King Hot Water Boiler and Imperial Radiators. The perfect heat and low operating cost will delight your customers. Eliminate all "chance" by recommending King Hot Water Boilers and Imperial Radiators.

STEEL AND RADIATION, LIMITED

Manufacturers of Hot Water *and* Steam Boilers *and* Radiators; Fenestra Steel Sash *and* Concrete Reinforcing

Head Office: Fraser Ave., Toronto **Sales Offices: Montreal, Toronto, Quebec**

A Complete Stock of all Lines is Carried at Our Montreal Warehouse
Western Agents: The J. H. Ashdown Hardware Co., Ltd., Winnipeg

THE MODERN HEATER

Hot Water Heating by Steam

We furnish plans and specifications for Heating and Ventilating Schools and Public Buildings. Central Heating Plants for Groups of Buildings. Laundry and Kitchen Equipment.

Some of the installations we have made, list of many others on application :

Grey Nuns Mother House, Montreal.
St. Vincent de Paul Hospital, Brockville, Ont.
Adam Clark, Hamilton, Ont.
Hagens Convent, Halifax, N.S.
Orphanage St. Joseph, Winnipeg, Man.
Grey Nuns Mother House, Ottawa, Ont.

We solicit enquiries from Architects

Modern Heating & Engineering Co. Limited

83 Bleury Street, Montreal, Que.

Demand versus Acceptance

Editorial in "Printers' Ink"

A prominent retail merchant walked into the office of "Printers' Ink" the other day and asked us to advise advertisers to go easy on the you'll-have-calls-for-my-goods argument. According to this man, this plea does more harm than good.

He says that too often it is the concern that advertises only in flashes for the sole purpose of impressing the retailer, that is the loudest in talking about calls. The buyer discounts these promises, because he knows from experience that the few calls that such advertising may produce can be safely ignored.

When an article is well advertised, it may be taken for granted that the retailer will receive calls for it. But to emphasize this too much is dangerous. There is nothing easier than for the buyer to declare that he is not receiving calls. That is always his pet objection, and an overmastering one it is. Most salesmen give way before it.

As a matter of fact, the call argument is fallacious, both from the standpoint of the man who uses it to make a sale and also from the standpoint of the prospect who tries to get out of buying by saying he never had a call. Demand is not always expressed vocally. Advertising accumulates a host of desires in most persons that they do not express until a favorable occasion for the purchase of the desired article arises.

The chances are they may never ask for the product at all. Some time when they see it displayed, they will buy it merely by saying, "I will take one of those." Every experienced advertiser knows that advertising is vastly more potent in creating consumer acceptance of a product than it is in bringing oral demand for that product.

Recently one of Hart, Schaffner and Marx's largest dealers told us that it is seldom a man comes into his store and asks for this brand of clothes. This retailer is widely known as a Hart, Schaffner and Marx distributor. Customers who come in take it for granted that they will be given these clothes. They do not call for the brand; they accept it. Nine times out of ten that is the way advertising works.

It is a mistake to pin too much faith on the "call" theory. It is rarely a reliable guide. We heard a druggist not long ago say that he had greatly increased his sales since he stopped waiting for "calls" and began to handle everything that he thought his trade should buy. One illustration that he gave is graphic. He declared that he always carried dental floss, but did not display it because "there were so few calls for it." In an entire year he sold only a gross of floss. However, a salesman one day induced him to group all his dental goods in an imposing display. The sale of all this merchandise immediately increased. Almost everyone who came in picked something off the counter. The increase in the floss sales was particularly noticeable. Picking up a package his customers would say, "My dentist told me to use this. I did not know that you handled it." He now sells twenty-four gross of dental floss in a year. In this one case waiting for calls was euchring this druggist out of about 96 per cent. of his possible floss business.

"DIAMOND"
CAST IRON
FLANGED FITTINGS
STANDARD AND EXTRA HEAVY

Write for Our New Catalogue.

FITTINGS LIMITED
OSHAWA, CANADA

THE CANADIAN
JOHN WOOD MFG. CO., LIMITED

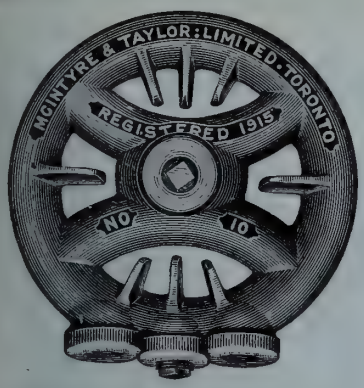
Grand Trunk Railway - Coxewell to Hillingdon Ave.
TORONTO, ONTARIO

MAKERS OF THE FAMOUS

Electric Weld Range Boiler

The Quality

M. & T. EXTENDED SURFACE COILS SOLD ALL OVER CANADA BY LEADING JOBBERS



McIntyre & Taylor LIMITED

OTTAWA
Taylor-Forbes Co. Limited

LONDON
The Empire Mfg. Co. Limited.
Taylor-Forbes Co. Limited.
The Hobbs Hardware Co. Limited.

HAMILTON
Burrow, Stewart & Milne Co. Limited.
Hamilton Stove & Heater Co. Limited.
C. Marks & Co.
Standard Sanitary Mfg. Co. Limited.
Taylor-Forbes Co. Limited.

CALGARY
J. H. Ashdown Hardware Co. Limited.

MONTREAL
Burrow, Stewart & Milne Co Limited.
Dominion Radiator Co. Limited.
Gurney-Massey Co. Limited.
Jas. Robertson Co. Limited.
Steel & Radiation Limited.
Thos. Robertson Co. Limited.
Taylor-Forbes Co. Limited.
Warden King Limited.

TORONTO
Burrow, Stewart & Milne Co. Limited.
Canada Metal Co. Limited.
Canada Pipe & Steel Co. Limited.
Cluff Bros.
Dominion Radiator Co. Limited.
The Empire Mfg. Co. Limited.
Gurney Foundry Co. Limited.
Jas. Morrison Brass Mfg. Co. Limited.
W. A. Porter & Co.
Jas. Robertson Co. Limited.
Standard Sanitary Mfg. Co. Limited.
Steel & Radiation Limited.
Taylor-Forbes Co. Limited.
Warden King Limited.
Crane Limited.

WINNIPEG
J. H. Ashdown Hardware Co. Limited.
Burrow, Stewart & Milne Co. Limited.
Crane Limited.
Dominion Radiator Co. Limited.
Gurney North West Foundry Co. Limited.
Jas. Robertson Co. Limited.
Vulcan Iron Works Limited.

ST. JOHN, N.B.
Jas. Robertson Co. Limited.

SACKVILLE, N.B.
Enterprise Foundry Co.

VANCOUVER
Crane Limited.
Gurney Foundry Co. Limited.
Taylor-Forbes Co. Limited.

GUELPH
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Findlay Bros. Co. Limited.

MONTREAL
55 St. Francis-Xavier St.

TORONTO
501-3 Queen St. W

WINNIPEG
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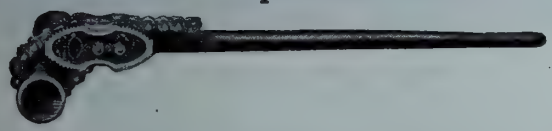

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SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

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Will Comply With Board's Order

Sanitary Engineers of Calgary and District to Make Returns as Requested by the Board of Commerce—Cost and Selling Price is Asked on Long List of Builders' Hardware and Plumbing Goods

CALGARY—Sanitary Engineers of this city and district will supply to the Board of Commerce at Ottawa full information in respect to the cost and selling price of materials of all kinds used in the building industry prior to March 31 of this year as required by the board. This was decided at a conference held by men in the trade in the Board of Trade rooms with James Kellas, secretary of the Alberta Retail Merchants' Association.

WHAT IS REQUIRED

The order applies to all producers and vendors, whether manufacturers, wholesalers, jobbers, retailers or otherwise, and includes the cost and selling prices of the materials in foundations and walls, such as bricks and cement flue linings, lime, sand, stone; plaster and all kinds of laths, bishopric board and beaver board, etc.; rough and manufactured lumber; glass and paints, roofing; plumbing and accessories; kitchen necessaries for building in such as cooking stoves, etc.; hardware and sundries, such as nails, hinges, locks, clothes hooks, building paper, tar paper, electric wiring and fixtures, heat registers, steel reinforcements, steel beams, fire protection apparatus, contractors' plant.

WERE NOT FAMILIAR

The local firms were not familiar with the nature of the particulars required by the government, but after these had been thoroughly explained, the representatives of the firms expressed confidence that the information could all be obtained and forwarded within the period named by the board.

In the order of the Board of Commerce it is ruled that "building materials of all kinds ordinarily or necessarily used in the construction or sanitary completion of houses for homes, including plumbing fixtures and building hardware, are necessaries o flife under part two of the Combines and Fair Prices Act, 1919. This special regulation is made pursuant to Section 16 of said Act." It is required that the buying and selling price of such materials, whether to contractors or individuals, must be given, and the dates on which these prices governed must also be given.

THE BOARD'S ATTITUDE

"Any dealer or dealers holding or offering for sale within Canada such building materials," said the order, made by Judge H. A. Robson, K.C., chief commissioner, and W. F. O'Connor, K.C., and James Murdock, commissioners, "will hereafter be deemed to have committed an offense under the Combines and Fair Prices Act, 1919, if an unfair profit is made by them or him in the sale of such building materials."

COMPLAINTS

A more recent order of the board deals with complaints against the first one, made in certain trade papers. Certain vendors, it was stated, considered that because no personal service was made upon them of the first order, compliance with the order was not required by law. To this the board reply that as the order was published for three weeks in the Canada Gazette it had by Section 39 of the Board of Commerce Act the same effect as if it formed a part of the act.

To the contention of the trade papers that the information required by the board would be insufficient to serve any practical purpose, the board replied: "The object of this order is to secure information, preliminarily, to enable the board intelligently to proceed to further and more extensive inquiries.

SAYS IT IS NECESSARY

A third ground of protest against the act was that "compliance under such order is burdensome and unnecessary because no unfair profits are being made by such vendors." "Compliance with law is always burdensome," was the reply, "board's proceedings are necessary. It is charged by Parliament with the obligation of making such inquiries in the public interest. Its inquiries do not imply guilt on the part of any, but its orders must be strictly obeyed. Let those to whom its inquiries are addressed make full and fair disclosure and where profits are but fair it will be this board's duty to so declare. If profits are found to be unfair this board must perform its duty in another way. In either event all prejudicially concerned will have ample opportunity to explain or defend."

TO SUFFER PENALTIES

The commissioners further comment on certain articles in which, they say, it had been stated "that certain vendors have decided not to comply with such order." Such persons as disregard this board's orders," was the reply, "will suffer the appropriate statutory penalties."

Will Ask Board of Commerce to Furnish Information

Montreal Chamber of Commerce Discusses Recent Order—Business Profits Tax Also Up For Consideration

AT the regular meeting of the Montreal Chambre de Commerce criticism of the Board of Commerce was precipitated by Alex. Prudhomme, a member of the Board and president of A. Prudhomme & Fils, Limited, wholesale hardware merchant.

Mr. Prudhomme contended the recent order of the Board of Commerce relative to building materials, builders' hardware, etc., was unreasonable. He submitted that the order regarding returns concerning the prices of builders' hardware was entirely unjustified and practically impossible to answer. The wholesale hardware house carrying thousands of different articles could not be expected to furnish information such as that asked for, and particularly in view of the fact that a hardware stock is so comprehensive. Mr. Prudhomme believes that the annual inventory of a house should be sufficient for the purposes of the Board of Commerce.

Will Seek Information

As a result of a discussion which followed, it was suggested that a representative of the Board of Commerce be asked to attend a subsequent meeting of the Chambre de Commerce, who will give the members information on the subject on which no one seems to know a great deal. The questionnaire of the Board of Commerce is rather vague and for this reason fuller information is desired and will be sought in the above manner.

In discussing the matter with Mr. Prudhomme, he emphasized to SANITARY ENGINEER the difficulty of the hardware trade giving information on lines which are handled. For instance, goods are bought at so many different times and delivery is made in so erratic a manner, that it would be impossible to furnish the Board of Commerce with the details of purchase price, etc. "I am quite willing to give this Board any information which they desire, and still I think it is impossible to give the details they seem to want. I have been following with much interest the special articles in SANITARY ENGINEER along this line and I am going into the matter more fully."

Business Profits

Another matter taken up by the Chambre de Commerce was that of the Business Profits tax and various members spoke on this topic. Mr. Prudhomme urged a resolution that the Government be asked to discontinue this tax. R. Tourville, M.L.A., spoke on the subject, and Henry Viau and A. Lambert also gave voice to their sentiment on this question. The matter was finally referred to the Initiative Committee, made up of the chairmen of the various committees, among which the work of the Chambre de Commerce is divided.

The matter of interest to the trade was that of a communication which had been received from the Hon. Mr. Pelletier, the Canadian Trade Commissioner in London. It is pointed out by the Trade Commissioner that many English industrial men are anxious to trade with Canadian manufacturers and the Chambre de Commerce will furnish the Trade Commissioner with list of Canadian manufacturers, giving him information regarding their respective industries.

Strike in the Building Trades at Quebec is Feared

Bitter Feeling Between the International and National and Catholic Unions May Cause Serious Trouble

MONTREAL.—Possibilities of a general strike in the building trades throughout the Province of Quebec are looming up as a result of a clash which has come to a head between the international and national Catholic unions in the industry. The two organization groups are diametrically opposed in ideals and purposes. Both sides are now engaged in preparation for a struggle which must result in the obliteration of one of the groups, and which may result in a general upheaval of the building industry, which would be disastrous at the present time, when a building boom is early expected. Both unions are holding meetings in the city at the present time and are organizing a fight for supremacy.

John W. Bruce, general organizer of the International Plumbers' and Steamfitters' Union, and chairman of the International Conference Board now sitting in the city, stated: "There appears to be an effort on the part of the National Catholic Union to make a fight against the international unions. A serious clash is inevitable unless steps are taken to overcome it."

In view of the seriousness of the local situation the International Conference Board is sending officers to Washington to lay the full facts of the case before the international presidents of the building trades unions there.

Oppose Expenditure For Public Baths

While the Winnipeg "Tribune" is not opposed to an expenditure of $300,000 for public baths for the city, it is against laying out the money at the present time. Discussing the question it says editorially:

"It may be that Winnipeg should have, when more money is in sight, an additional expenditure of $300,000 for public baths, but in the meantime we do not think the citizens will endorse the proposed $300,000 bath by-law.

"The city and surrounding municipalities have expended somewhere around $15,000,000 to bring soft water into the city. It is in every home. The supply is ample, and there is practically no restriction upon its use for family household purposes. It is a boon.

The argument may be used that boys and girls, and even grown-ups need the temptation of a swim in order to keep their bodies clean. Let us try, in our schools, the effect of instruction; say five minutes, twice a week, to ascertain how many scholars have taken their bath. And tell the children, even more frequently, that cleanliness is next to godliness. Dirt and decency, in fact, cannot travel together.

For the masses of people here the summer is the popular swimming season. Erect, if necessary, cheap, yet safe, places on our rivers.

While our taxes and the cost of living are sky-high, let us proceed cautiously; let us save and produce.

Therefore, if the proposed $300,000 by-law is submitted, vote it down."

Shipping Board To Close Office

The British Ministry of Shipping, which has practically controlled the export trade of Canada inland and overseas during the war, will be closed, according to a statement of its director-general, Sir Arthur Harris, on March 31.

It is stated that during the period from August 25, 1914, to December 31, 1919, over sixteen million gross tons of munitions, war material, and various supplies were moved inland and overseas under the direction of this department. All correspondence concerning the affairs of this ministry in Canada after March 31 should be addressed to E. M. Raeburn, Director-General, British Ministry of Shipping, 165 Broadway, New York.

Windsor, Ont.—Prices wanted on heating, plumbing, and electric lighting in connection with new $250.000 theatre to be erected for Loew's Syndicate.

London, Ont.—Plans are being prepared for new church to cost $50,000 for the Edgerton Street Baptist congregation, Rev. A .C. Bingham, pastor.

Gravenhurst, Ont.—The Water Commissioners plan to lay new water mains during the summer at a cost of $5,000.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

CHAPTER II

In designing a small installation for disposing of the foul waters from a private house, the first point to be considered is the best location for the works to be constructed, which depends greatly upon the levels of the site and the layout of the grounds. The most ideal location is as far as possible from any habitual buildings, talking into consideration the best available land suitable for land filtration as well as a convenient outlet, because beneficial and good results depend greatly upon the selection of a suitable site.

After the site has been definitely fixed the design of the works must be carried out by the engineer and the usual procedure which have in practice given the best results, is either the installation of modern cesspool or a small septic tank with secondary land filtration. The former produces good results in light soils such as gravel, sand, etc., but is being superseded by the septic tank which, if properly and scientifically designed, undoubtedly produces the best results with the least amount of maintenance cost and supervision.

Cesspools

Many years ago the usua method of disposing of sewage was by means of excavating a hole in the ground at a suitable location away from the house buildings and allowing the sewage to deposit its sludge into this chamber, the clarified effluent percolating through the porous lining of the cesspool into the earth.

Later impervious concrete lining was substituted for the rubble or bricks laid dry and the sewage allowed to collect in the circular chamber until the level of the liquid reached the overflow pipes, which usually discharged into the porous soil or were connected to a system of lateral land drain and purified by land filtration.

The Solids Settle

The solids settle in the bottom of the cesspool and require periodically cleansing. The cesspool, if constructed, should be thoroughly watertight and well ventilated, as the solids in the sewage undergoes decomposition, giving off a large amount of impure gases, and they should be located in an isolated position away from all sources of water supply and wells, stream, watercourses and, as far as possible, from the main buildings of the house. Owing to the small discharge of sewage from the overflow feeding the filtration area, which is never more than a dribble unless tile drainage is laid, the filtration area directly next to the cesspool is treating the whole of the clarified effluent from the cesspool and the land in time becomes what the engineer terms "sewage sick" and purification ceases. So in a good system it is always advisable to connect the overflow with land drains and purify the sewage on a given filtration area.

Figures 1 and 2 show plan and section of a circular cesspool constructed in concrete, applicable for any residence where secondary filtration through land drainage tile is adopted. The walls should be constructed of good Portland cement concrete in the proportion of 1 part cement, 2 sand and 4 broken stone or gravel, nine inches thick, well tamped so as to ensure a perfectly watertight chamber. The cover should be reinforced with 3-8 inch steel rods and filled with an airtight inspection cover for cleaning-out purposes. The ventilation shaft should be carried up the side of a suitable outbuilding, having a free access to the open air. In all cesspool construction sharp angles should be avoided and the floor should fall towards the centre to facilitate the removal of sludge.

For Light Soil

Figure 3 shows the construction of a cesspool which is suitable for very light soil, the filtration area being dispensed with and the sewage percolates through the dry rubble course into the adjacent light soil for secondary purification. The bottom part of the cesspool acts as the sludge chamber and its capacity depends upon the number of persons using same and the time required between each cleansing operation, so in designing one of these cesspools the bottom half of the chamber should hold at least 6 to 12 months' sludge deposit and, for successful results, the sludge deposit must never reach above the lower joint of the coarse rubble or filtration area will become choked through the fine particles of sludge which would find their way through the open joints into the filtration media.

Being Superseded

With the advancement of sanitary science many disadvantages against the cesspool have been practically proved which has discouraged its installation for solving the sewage problem of country homes, farms, etc., and it has been superseded with the small septic tank installation. One of the greatest drawbacks to the best constructed watertight cesspool, is the disposing and handling of its contents when the cesspool must be cleaned, which is usually accomplished by means of a small pump at least

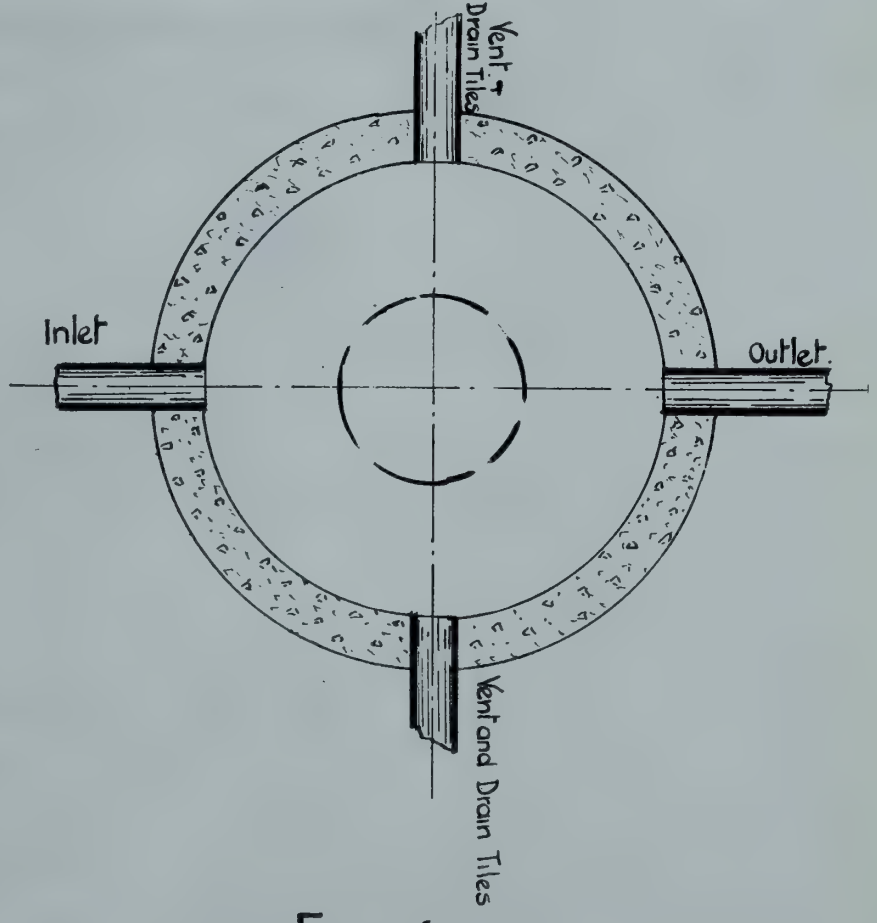


FIG. 1

once a year, according to the capacity and design of the cesspool.

If a cesspool is constructed it should not be constructed less than 50 feet from any dwelling house and at least 60 to 80 feet from any well or spring likely to be used for drinking or domestic purposes, as it necessarily involves the storage of a somewhat large accumulation of excremented filth and, therefore, very liable to become a source of nuisance and danger to health. With a view of obviating the risk of obnoxious smells and water pollution, which may follow on some undetected defect in a cesspool originally well constructed, the above minimum distances should be carried out for safety reasons.

Septic Tank

A septic tank consists of a dark, watertight, underground compartment used for the storage and purification of sewage by bacterial life. The tank can be constructed of any materials, provided same are constructed perfectly watertight and finished with a smooth surface, keeping in view the exclusion of all air, etc.

The size of the tank depends upon the number of persons, the residence accomodation and the number of gallons of water per capita used by the occupants. But in designing a tank sufficient tank capacity should be allowed so that the total flow can always remain in the tank from 24 to 36 hours; the solid matter, during this period, settles to the bottom of the tank and is partially liquefied, deodorized and destroyed by countless numbers of bacteria which live and thrive without light or air in all manner of filth.

Obtaining the Size

Another simple manner of obtaining the size of the settling chamber, found by actual practice to produce good and satisfactory results, is by allowing so many cubic feet of tank area per person governed by the amount of retention.

A thick scum is formed on the surface of all septic tanks a short while after the tank has been in operation which encourages and develops bacterial action and the breaking up of this scum prevents and retards the bacterial action of purification for a time, until same re-accumulates, at the same time allowing the foul gases to escape into the outside air.

Tank Accommodation

In designing works, especially for "fresh" sewage which varies considerably from the septicized sewage of a large city through the action and splitting up process undergone in the many miles of sewers, it is advisable to provide tank accommodation for from 1 1-4 to 1 1-2 times the normal daily flow in order to bring the fresh sewage to the same standing of putrefaction. Longer tanking process is essential to balance the septic action which takes place in sewers to the sewage during transit to the works.

Toronto, Ont.—R. C. Vaughan, 66 Dunvegan Road, is preparing plans for converting four residences into duplexes. Prices wanted on plumbing and heating.

Blyth, Ont.—Tenders will be received until March 15 for the erection of Memorial Hall to cost $12,000. W. G. Murray, Dominion Savings Bldg., London, Ont., architect.

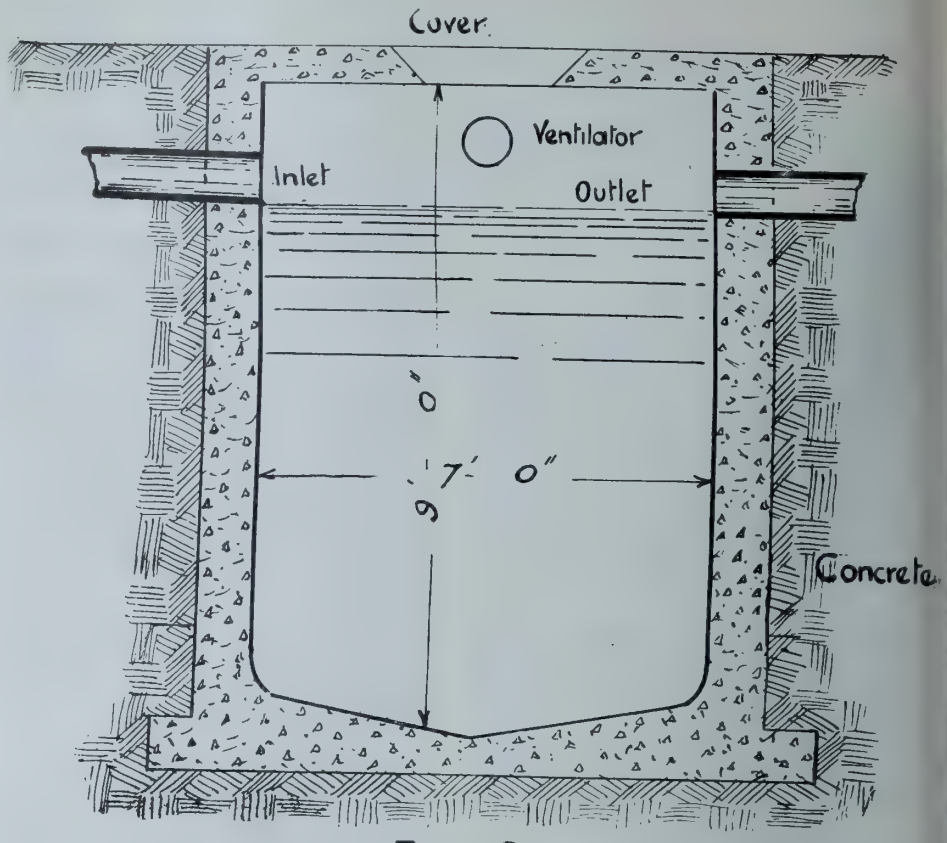


FIG. 2.

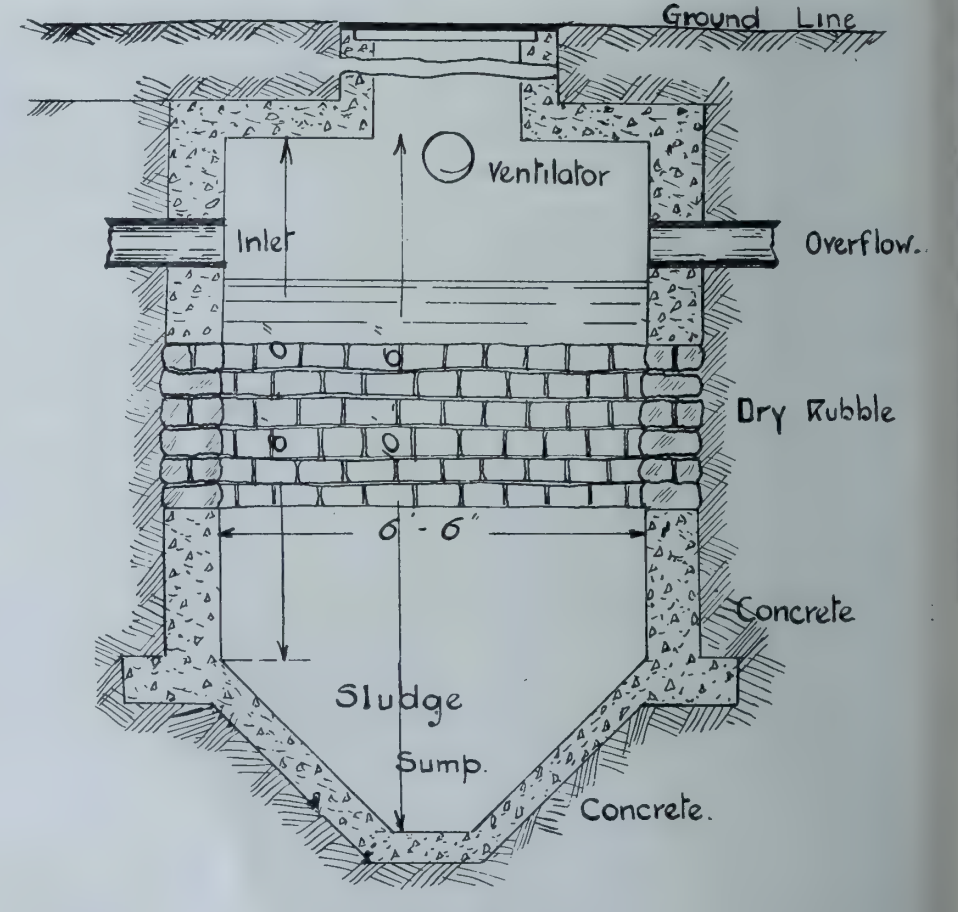


FIG. 3.

New Plumbing By-laws at London, Ont. in Line With Proposed Provincial Law

Important Step Forward is Taken by City Council With a View to Securing the Sanitary Condition of Buildings—Plumbing Inspector is on the Job to See That Regulations Are Carried Out

RIGHT in line with the proposed new plumbing regulations for the Province of Ontario is the new code of by-laws for plumbing which has just been adopted by the City Council at London, Ont., and is now in effect under the supervision of Plumbing Inspector J. Young and the Department of Public Health.

In order that every sanitary and heating engineer in the city may be thoroughly familiar with the by-laws, Inspector Young held special meetings in the Technical School to which they were invited. He went thoroughly into all the clauses and explained them in detail, frequently using charts and drawings.

The new by-laws, together with the regulations of the Board of Health in regard to plumbers, are as follows:

BY-LAW NO. 6008
To Secure the Sanitary Condition of Buildings

Be it enacted by the Council of the Corporation of the City of London as follows:

1. It shall be unlawful for any person or persons to do any work in connection with plumbing or drainage of any building within the City of London, unless the same shall conform with the following requirements:

2. Before proceeding to construct, reconstruct, alter or relay any portion of the drainage, ventilation or water system of any hotel, warehouse, dwelling house or other building, the owner or his agent (in the case of agent his authority from owner must be produced in writing) desiring to construct the same shall file in the office of the Medical Officer of Health an application for a permit therefor, and such application shall be accompanied with a specification or abstract thereof in a blank form prescribed and supplied for this purpose, stating the nature of the work to be done, and giving the size, kind and weight of al lpipes, traps and fittiings, and a description of all closets and other fixtures, and also a plan thereof, showing the street and street numbers marked thereon and the drainage system.

3. All plans must be legibly drawn in ink an heavy white paper or tracing linen, and on a scale of eight feet or four feet to an inch, and such scale plainly marked on plan.

4. If the Medical Officer of Health finds that the plans and specifications do not conform with this by-law, he shall not issue any permit, and it shall be unlawful to proceed with the work referred to in the application.

5. A permit shall be granted or refused within two days from the time of filing the application, and (if granted) shall be valid for six months from the date of issue.

6. After a plan or specification has once been approved no alteration or deviation from the same shall be allowed, except on a written application of the owner, or agent of the owner, and with the approval of the Medical Officer of Health.

7. No master plumber, plumber or tile drain layer, engaged by the owner of any building to construct, reconstruct, alter or relay any portion of the drainage, ventilation or water system thereof, shall do any work in connection with such construction, reconstruction, alteration or relaying at or upon any such building until such master plumber, plumber or tile drain layer has satisfied himself that the owner has filed his application for a permit for such work, as required by this section, and has obtained a permit therefor as required by section 2 of this by-law, and the production of such permit from the Medical Officer of Health shall be sufficient evidence to the said master plumber, plumber or tile drain layer, of the application at the Department of Health having been properly made.

8. Between the building and the public sewer or drain there shall be placed a ventilation hand-hole cleaning trap of approved description and make.

9. Between the said trap and the foot of the soil pipe there shall be connected with main house drain an inlet pipe, for the admission of fresh air, four inches in diameter, to be situated at least 10 feet, if possible, from any opening into the house, and not less than 12 inches above finished grade, the mouth of which shall have a return bend or a cap giving an area of one-fourth more than the diameter of the inlet pipe.

Should cellar window or other opening be within, or adjoin verandah, the air inlet must be situated as remote as possible from the same, it must not terminate under closed verandah or under steps, but he brought out and finished in the open.

10. In case of a building or buildings to be built on a street which is not sewered, septic tanks may be installed upon receiving a special permit from the Medical Officer of Health, and they shall be subject to conditions imposed by him from time to time.

11. The pipe in underground drainage shall be of the best material and workmanship, and free from all blisters, cracks, flaws, or defects of any description.

12. All changes in direction shall be made with "Y" junctions and curved bends; no right angle junctions will be allowed; all joints must be put together with the best portland cement properly mixed and tempered, and finished flush with the edge of the pipe; the joints on the inside of the drain to be in all cases properly cleaned and finished so as to be perfectly free from all burrs. No drain shall be laid with a less grade than the following:

Drains 4 inches in diameter, a minimum grade of 1 foot in 40 feet.

Drains 6 inches in diameter, a minimum grade of 1 foot in 60 feet.

Drains 8 inches in diameter, a minimum grade of 1 foot in 80 feet.

Drains 10 inches in diameter, a minimum grade of 1 foot in 110 feet.

Drains 12 inches in diameter, a minimum grade of 1 foot in 140 feet.

Drains 15 inches in diameter, a minimum grade of 1 foot in 200 feet.

Drains 18 inches in diameter, a minimum grade of 1 foot- in 250 feet.

Drains 24 inches in diameter, a minimum grade of 1 foot in 330 feet.

13. Vitrified salt glazed earthenware drain pipe shall be equal in quality to those used for the private drain connection, as specified from time to time by the City Engineer for private drain connections. The pipe used for weeping or subsoil drainage tiles shall be connected to a rain water leader drain on house side of trap; surface and floor drains must be trapped and have a rain water leader discharging through trap used for same.

Waste pipes from sinks or a plumbing fixture of any size whatsoever shall, under no consideration, be connected to weeping tile under any building.

14. All drains used for weeping and subsoil drainage of any building must connect to main drain of building on sewer side of main trap and be so arranged that sewage will not pass or back into their trap.

15. All earthenware drains laid on newly made ground or very wet soil, shall be laid on a prepared foundation of 2-in. pine plank or 4-in. concrete. No built trap or mason's traps shall be used inside of any building. All traps on earthenware drains shall be of vitrified salt glazed earthenware, and all traps to have hand-holes, and said hand-holes extended to the surface. No inverted joints of any kind will be allowed below any fixture.

16. All private drains laid by the Corporation are to be taken to the outside of the wall where buildings are on the street line.

17. All rain water leaders shall be trapped when connected with the drainage system of any building.

(a) Rainwater leaders shall not be used for soil or waste pipes, nor shall soil or waste pipes be used for rainwater leaders.

(b) When the conductors or roof leaders connect to drain inside of the main trap they shall be of the same material as a soil drain, and when passing up to roof within a building they shall be tested the same as the soil system with the water test.

(c) Where roof area of any building is grreater than 1500 square feet, plans showing proposed drainage thereof shall be submitted for approval to the Medical Officer of Health and the City Engineer.

18. All drains used for sewage or waste water under any building shall be of cast iron, and of the kind and weight specified by this By-law.

19. All cast iron drain, when ten feet or longer, shall have at least two cleaning-out screws, or approved hand-hole fittings, one to be about twelve inches above and in front of the bend at the basement floor, that is, one on each vertical soil pipe or waste pipe, and the other between the said bend and the outer wall of the house; in all other cases, one clean-out screw or hand-hole fitting placed at foot of sail pipe as before described, will be sufficient.

All cast iron soil waste pipe shall be rendered impervious to gas or liquid, by the joints being caulked with oakum and run with molten lead.

20. Clean-out screws or air-tight hand-hole fittings shall be of the same size as the pipe to which they are attached, except when pipe is larger than 4 inches, when 4 inches will suffice.

21. When alterations are made in a building already drained by a tile drain, same may be re-used (provided they are satisfactory to the Medical Officer of Health).

If necessary to relay, it shall be relaid as provided in clause 18 of this By-law.

22. All plumbing fixtures put in for use in any building shall be properly trapped, vented and connected to a sewage drain, soil or waste pipe. Wooden laundry tubs and wooden sinks connected with house drains are prohibited.

23. Refrigerator wastes, if drained, shall terminate and discharge either into an open sink, which is supplied with City water, or an opening used for draining of cellar floor surface.

24. No safe waste, range boiler, heating boiler, or cistern overflow shall be allowed to connect to any drain. Wherever safes are placed under fixtures the safe waste shall

be run separately to a tapped sink or basin in the basement or cellar and be closed by a hinged brass flap valve of approved device, to prevent cellar air from rising through the pipe. Urinal platforms shall not be provided with safe wastes.

25. Drinking fountains, manufactured for this purpose only, placed on wall or pedestal, and used for drinking only, may be cannected to a rain water leader drain on building side of its trap without having a separate trap and vent; but if connected to a sewage drain they will be considered a plumbing fixture, and shall have a trap properly ventilated.

26. Each house or building must have its own separate soil pipe, four inches or larger, and drain, and such soil pipe shall be so placed as to enable it to be readily inspected without destruction to walls; and the plumber shall be responsible for the proper connection of his work with the system of drainage; and no two or more buildings shall have any drain in common except where there are two buildings on the one lot, one in rear of the other! if in that case there is no sewer or drain in the lane or alley to which the rear building can connect, and the rear building is not used as a dwelling-house or for human habitation, the drain of the front building may be extended to serve such rear building.

27. All drains must be properly connected with the private drain and not covered until inspected. $n no case shall the drains between th walls of the house and the street line be laid until the private drain from the street line to the public sewer shall first have been laid and completed. Where the tile and iron pipes are of the same size, the iron pipe must be connected to the tile drain by a taper pipe.

28. All soil pipes within the walls of any building shall be of cast iron or wrought galvanized, and shall be continued at least three feet above any opening in the roof, which may be within fifteen feet of the same, and three feet above any opening into any adjoining building or extension when such building or extension is within fifteen feet of such pipe, and be left open so that the whole of the inside drainage may be thoroughly and constantly ventilated. All soil or vent pipes, when they pass through the roof, must be properly flashed with five-pound sheet lead, or 18-gauge copper, and made water tight. That portion of metal resting on roof must be at least 20 inches square, and that portion extending up pipe if used, must be 10 inches high.

29. No soil pipe of 4 inches in size shall receive or have connected to it the discharge of more than four floors of any apartment or flats building; each floor must not contain more than two W.C.'s, four baths, two basins, two sinks, and two sets of laundry tubs. Main vent pipe for this or similar cases must be increased one size below roof, and pass out separately through roof.

30. No cast iron pipe used for soil pipe shall weigh less than the following per length of five feet:

2-inch inside diameter	20 lbs.
3-inch inside diameter	30 lbs.
4-inch inside diameter	45 lbs.
5-inch inside diameter	85 lbs.
6-inch inside diameter	100 lbs.
7-inch inside diaemter	135 lbs.
8-inch inside diameter	167½ lbs.
10-inch inside diameter	225 lbs.
12-inch inside diameter	270 lbs.

31. No cast iron pipe used for drains under ground shall weigh less than the following per length of five feet, and must be coated with asphaltum or tar applied hot, together with all fittings in drain under ground:

2 inch inside diameter	27½ lbs.
3-inch inside diameter	47½ lbs.
4-inch inside diameter	65 lbs.
5-inch inside diameter	85 lbs.
6-inch inside diameter	100 lbs.
8-inch inside diameter	135 lbs.
9-inch inside diameter	167½ lbs.
10-inch inside diameter	225 lbs.
12-inch inside diameter	270 lbs.

And all pipes, traps, bends or fittings of cast iron shall be of good quality, and shall be free from flaws or defects, and shall be of uniform thickness; untarred pipe and fittings only to be used above ground, which shall be immersed in linseed or other vegetable oil, or other coating which the Medical Officer of Health from time to time may approve of, to prevent them from rusting.

32. All traps and fittings shall be equal in quality and thickness to the pipe to which they are attached.

33. Garage drains must be of the same material as that required for house sewers when underground; and for soil and waste pipes, when above ground.

In garages or other buildings where petroleum oils are used, all drains coming in contact with the same, including bell traps, sink and lavatory wastes, must pass to sewer separately from ohter drainage, and shall pass through a sump made according to the instructions of the Board of Health. The diameter of this sump shall be eighteen (18) inches if one or two machines are provided for; twenty-four (24) inches if there are more than two machines.

The material for vent pipes must be the same as required for house drains when below the ground, and for soil and waste vents when above ground.

34. No wrought iron pipe galvanized shall weigh less than the following per lineal foot:

	Per lineal ft.
1¼ inches inside diameter	2.24 lbs.
1½ inches inside diameter	2.68 lbs.
2 inches inside diameter	3.61 lbs.
2½ inches inside diameter	3.61 lbs.
2½ inches inside diameter	5.74 lbs.
3 inches inside diameter	7.54 lbs.
3½ inches inside diameter	9.00 lbs.
4 inches inside diameter	10.66 lbs.
4½ inches inside diameter	12.34 lbs.
5 inches inside diameter	14.50 lbs.
6 inches inside diameter	18.76 lbs.
7 inches inside diameter	23.27 lbs.
8 inches inside diameter	28.18 lbs.
9 inches inside diameter	33.70 lbs.
10 inches inside diameter	40.00 lbs.

All fittings used for soil or waste pipes in connection with wrought iron shall be extra heavy galvanized cast iron or malleable iron recessed and threaded drainage fittings. The burr formed by cutting the wrought iron pipe shall be carefully reamed out, and pipes left full bore.

35. Vertical lines of soil, waste, or other pipes inside of building shall be provided with strong wrought iron floor rests at intervals of every second floor.

36. No double nubs, straight crosses, double "T's" or double "T-Y's" shall be used in any soil or waste pipe below any fixture; no branch fitting other than a full "Y" or "Y" and ⅛ bend shall be used on any soil or waste pipe running in a horizontal direction.

37. When a system is to be installed for soil and waste pipe, it must be either entire galvanized wrought iron, or entire cast iron, but must not be part galvanized wrought iron, and part cast iron.

38. Waste pipes from bath and basin or other fixture will not be allowed to connect to water closet bend, but must have a separate fitting to receive the same.

39. No waste pipe from any plumbing fixtures shall be less than inside diameter of its trap.

40. The size of traps for a given fixture shall never be less than the following inside diameter:

Water closets	3 inches
Slop sink	2 inches
Pedestal urinal	2 inches
Urinals	1½ inches
Laundry tubs, 1 to 3 considered 1 fixture	1½ inches
Kitchen sink	1½ inches
Pantry	1½ inches
Wash basin	1¼ inches
Bath tubs	1½ inches
Shower bath	2 inches
Sitz bath	1½ inches
Drinking fountain	1¼ inches
Dental cuspidor	1¼ inches

41. All drains and plumbing fixtures of every house or other buildings shall be provided with sufficient traps and vents to prevent gas from the sewer, drain, or waste pipes from escaping into any apartment; and each such fixture shall have its own trap with sufficient vent, said trap to be placed directly under, and as close as possible to fixture.

42. No fixture shall drain through more than one trap (main trap excepted), the vent to be not less than one size smaller than trap, and no vent of less than one and one-quarter inches in diameter.

43. No trap vent pipe shall be less than three inches inside diameter where it passes through the roof or outside wall, and all vent pipes must continue to rise after leaving the trap, and pass out through the roof or connect with soil pipe, above the highest fixture. Traps for basins and sinks, when ½ "S" or "P" traps are used, may be vented by a continuous vent if centre of waste opening is not more than 12 inches from face of finished plaster or wall which they pass through or along, measured, at right angles from face of wall—in all other cases location of trap vent will be governed by paragraph (c) of this clause.

(a) No trap vent will be allowed to connect to another vent below a point level with top of fixture for which it is used.

(b) A vent taken off a trap or lead bend under a floor shall be extended in the shortest way to nearest suitable wall or partition, and then extended vertically as high as required above floor line.

(c) No slip or washer joint shall be allowed on sewer side of any trap or on any vent pipe. Trap vents in all cases (W.C.'s excepted) must be taken off discharge side of trap or waste pipe, as shown in diagram —crown venting will not be permitted. No wrought iron vents will be allowed below top of cellar floor, or to be buried under any earth.

44. The rule for soil pipe terminus, as hereinbefore mentioned, shall govern said vent pipe.

45. No brass pipe used for waste or vent pipes shall be less than No. 19 Imperial gauge in thickness, and all brass pipe and fittings must be properly tapped and threaded.

46. Vents for water closet traps shall be 2 inches for a length of 25 feet, and for a greater length, 3 inches.

47. Vent pipe stacks must be increased one size after passing through four stories, and keep on increasing one size for each succeeding four stories.

48. Trap vents must be of brass, lead, cast iron, with brass galvanized cast malleable iron or brass fittings.

49. Closet vents, into which other vents are connected, shall be three inches in diameter. When the vent pipes combine, they must be increased in size.

50. All water closets (slop sinks, when in separate compartments), and urinals, must be supplied with three-inch local ventilation pipe having an area equal to that of a three-inch round pipe, and connected to a heated flue; when a number of pipes combine, the main or trunk pipe must be increased proportionately.

51. No gas heater used for heating water shall be installed without having a vent pipe, which shall be connected to a flue or carried into any unoccupied attic.

52. No lead waste or vent pipes shall weigh less than the following, when used in any building:

	Per yard
1¼ inches inside diameter	7 lbs.
1½ inches inside diameter	8 lbs.
2 inches inside diameter	10½ lbs.
2½ inches inside diameter	13½ lbs.
3 inches inside diameter	16½ lbs.
4 inches inside diameter	24 lbs.

53. For City Waterworks pressure, no lead pipe shall weigh less than the following: ⅜ inch internal diameter, 4 lbs. per lineal yard; ½ inch internal diameter. 6 lbs. per lineal yard; ⅝ inch internal diameter, 8 lbs. per lineal yard; ¾ inch inter-

nal diameter, 9 lbs. per lineal yard; 1 inch internal diameter, 12 lbs. per lineal yard.

54. In all cases where water pipes are placed under ground they shall be of lead pipe up to and including one inch inside diameter, and of the weight per lineal yard as specified in section 53 of this By-law.

55. All lead pipes shall have proper wipe joints.

56. Brass pipes used for waterworks pressure shall be standard wrought iron sizes and properly threaded. All fittings used for waterworks pressure must be proper threaded fittings; no slip joints will be allowed.

57. All water supply pipes shall be laid with due regard to danger from freezing, properly laid with a fall to a stop and waste cock, placed in the cellar or other convenient place where they can be entirely drained off. Each consumer in a tenement building shall be supplied with a separate stop and waste cock on the service pipes inside the building unless metered, or unless the owner pays the water rates for the entire building.

58. Every connection between lead and iron pipes shall be made with brass thimbles, ferrules, solder nipples, or ground-in unions, having properly wiped joints, and the ferrules shall be properly gasketed, leaded and caulked into the said pipe.

59. Brass thimbles, ferrules or solder nipples must not be wiped into closet bend or pipe or trap when used for venting same. All brass thimbles shall be increased in size at the top so that the lead pipe will enter full size.

60. Ferrules for 4-inch pipe shall weigh not less than 2½ lbs., for 3-inch pipe not less than 1¾ lbs., and for 2-inch pipe not less than 1½ lbs., each ferrule must not be less than four inches in length.

61. Where the trap to closets is above the floor, the connection of the same with the soil pipe shall be made with lead bend or lead pipe and cast brass floor flange with gasket or rubber or asbestos, said brass flange to be not less than three-sixteenths of an inch thick.

62. No closet or other convenience which allows the escape into the house of air or gas from any part of it, or from the drain or soil pipe connected with it, or which allows any accumulation of filth in or about it, shall be fitted up or used. Range closets or latrines will not be allowed.

63. No arrangement shall be made for supplying water closets or urinals except by self-closing cocks, unless when water is supplied by meter; and no arrangement shall be made for cleaning water closets or privy vaults by waste pipes from wash basins or sinks or other improper means; but they shall be fitted up with the proper fixtures and appurtenances belonging to them respectively. No copper lining of tank for a water closet shall be lighter than 10 ounces to the square foot, and weight must be stamped on lining in a conspicuous and accessible position. Sheet galvanized iron shall not be allowed.

(a) Where tank is used in attic or upper room of any house or building in connection with the domestic plumbing, said tank shall be lined with sheet lead weighing not less than 5 lbs. per square foot, or any other material approved of by the Medical Officer of Health.

(b) Tell-tale pipe shall not be less than ½ inch inside diameter of pipe, and shall discharge into sink to which pump is attached. All iron pipes connected to lead-lined tank shall be connected with lead pipe and brass ferrule or soldering nipple, and all joints shall be properly wiped. Iron pipes connected to lead-lined tank with locknuts shall not be permitted.

64. No person shall locate or cause to be located any water closet in any sleeping room, apartment or vault which is not in direct communication with the external air by means of a window or air space having an area of at least two (2) square feet, or vertical air shaft having an area of two (2) square feet for the first storey, and increased ten percentum for each storey it passes through.

65. Sec. 1.—All piping, traps and fixtures of a house drainage or plumbing system shall be inspected by the inspector to ascertain if all the requirements of this By-law have been complied with.

Sec. 2.—Whenever any connection is made with either a public or private sewer, it shall be subject to inspection the same as other piping, traps or fixtures of a house drainage system. All drains shall have a tee provided at street line for testing.

Sec. 3.—No drainage or plumbing system or part thereof shall be covered until it has been inspected or tested and approved as herein described.

Sec. 4.—If any house drainage or plumbing system or part thereof is covered in before being regularly inspected or tested and approved as herein prescribed, it shall be uncovered upon the directions of the Health Officer.

Sec. 5.—If an inspection or test shows defects, the defective work or materials shall be replaced with three (3) days and the inspection or test made again.

Sec. 6.—(a) It shall be the duty of the plumber or drainlayer to notify the Medical Officer of Health, in writing, when the work is ready to be inspected or tested. Inspection will be made the following day on all notifications received before 12 a.m.

(b) It shall be the duty of the plumber or drainlayer to make sure that the work will pass the inspection or stand the test prescribed before giving the above notification.

(c) If the inspector finds that the work will not pass inspection or stand the test, the plumber or drainlayer shall be required to renotify as above. Any extra inspection fee caused by defective workmanship shall be paid by the plumber in default.

Sec. 7.—(a) The material and labor for the inspection and test shall be furnished by the plumber or drainlayer.

(b) All piping, traps and fixtures of a drainage or plumbing system shall be tested by the plumber or drainlayer first, the roughing in shall be tested with water.

(c) The water test shall be applied by closing the opening at the outlet end of the house drain and all other openings in the piping with proper testing plugs and the system filled with water to the top of stack above the roof when the entire system is tested; the water column to be left standing at least fifteen (15) minutes. If the water level remains constant during such time, the system shall have been acceptably tested.

(d) The smoke air test shall be made by attaching the smoke machine to any suitable opening or outlet that will enable the inspector to ascertain that smoke has reached all parts of the system and when the system is completely filled with dense pungent smoke and the roof openings emit smoke they shall be closed and an air passage maintained for at least ten (10) minutes without leakage. The use of spring gauges or wooden plugs in making the tests is prohibited. The inspector may require the removal of any clean-out or unsealing of any trap to ascertain if the smoke has reached all parts of the system.

66. The tests may be made separately as follows:

Sec. 1.—(a) The soil, waste, vent, back vent, inside conductor and drainage pipes which would be covered up before building is enclosed or ready for completion.

(b) When the main house drain, rainwater and tile drains are laid before being covered.

(c) When the soil and waste pipes within the buildings are in place, connected to the traps and before being covered, they shall be filled with water to top of stack above the roof. If leaks are indicated they shall be found and corrected, removing all defective material and replacing the same with sound material and a new water test applied until the work is found to be tight.

The water test shall be applied to all buildings up to and including the fourth floor, above which a smoke test under pressure may be applied.

(d) Immediately after the work is fully completed there shall be a written request sent to the Medical Officer of Health for a final inspection. When the work has been properly inspected, tested and approved the Medical Officer of Health shall issue a certificate of acceptance to the plumber and drain layer, and no work will be entered as complete until the plumber and drainlayer has obtained this certificate.

Sec. 2.—(a) If a stable or any part of a stable be used for human habitation, the same inspections and tests of plumbing and drainage system thereof shall be made as in the case of any ordinary dwelling; all stable and stable yard drains shall be inspected.

(b) The smoke test shall be used in testing the sanitary condition of the drainage system of all buildings where there is a reason to believe that the plumbing system has become dangerous or defective on account of settlement of the building, or by abuse, accident or any other cause. In such buildings condemned by the Health Officer because of the insanitary conditions of the house drainage or plumbing, no such drainage or plumbing shall be considered as coming under the head of repairs, but all such house drainage or plumbing shall be done as in the case of new buildings.

(c) When alterations are made requiring the addition of two fixtures or a water closet or when a new bathroom is installed or the building is remodeled the entire drainage system shall be made to conform with the requirements of this By-law.

67. Every water cock, bibb tap or hydrant attached to any water service or pipe connected with and supplied from the waterworks system of the City of London shall have legibly stamped thereon, in a conspicuous place, the name of the maker, and the same shall be of sufficient strength to withstand the city water pressure, and of such make and design as the Water Commissioners may approve.

68. Every master plumber who shall himself or by his apprentice, agent or employees make any extension or alteration to, or shall remove any tap, pipe or other fixture attached to the pipes of the waterworks, shall on the last day of the month in which such extension, alteration or removal was made, report the nature or extent of same in writing to the Secretary of the Board of Water Commissioners upon a written form to be supplied by that department.

69. No person shall be allowed, without first having obtained a permit from the Waterworks Department, to open or shut off the street stop cock connected with the service supplying any premises or building, unless in case of urgent necessity, to prevent loss or damage from flooding, or when a plumber requires to do so in order to make necessary repairs, or to test his work, and in every such case he shall leave the stop cock as he found the same, and any person who shall commit any damage or injury to any stop cock in the service pipes of the waterworks shall be liable for the amount of such damage.

70. All work contemplated in this By-law shall be done in a workmanlike manner, and shall be subject to the inspection, supervision and approval of the Medical Officer of Health or any inspector appointed by him; and all plumbing work required under this By-law shall only be done by a licensed master plumber, or by a licensed journeyman plumber in the employ of such licensed master plumber, and all faulty or defective work which may at any time be discovered shall be made perfect to the satisfaction of the Medical Officer of Health or inspector appointed by him, and when so found satisfactory, a certificate shall be issued to the plumber at the expiration of seven days from date of inspection, unless in the meantime such work shall have become faulty or defective. Provided, however, that this section shall not prevent a person from doing necessary plumbing to and on his own premises subject to the inspection and the regulations demanded by this By-law.

71. The Medical Officer of Health, with the approval of the Council, shall appoint such inspectors of plumbing as may be found necessary after passing an examination considered proper by him, appointments to be made from applicants who obtain sixty-five per centum or more marks at such examination or examinations; such inspectors shall be under the supervision of said Medical Officer of Health.

To Prevent the Discharge of Steam, Hot Water or Oil, Tar and Grease Into the Sewers

72. "No person shall damage or injure any common sewer or private drain, or sewer communicating therewith, and no person shall cause or permit the discharge of steam or hot water above a temperature of 150 degrees Fahrenheit from any engine or boiler, or oil, tar and grease, into any common sewer or private drain, or sewer communicating therewith." (See diagram of intercepting tank in office.)

7. Any person convicted of a breach of any of the provisions of this By-law shall forfeit and pay, at the discretion of the convicting magistrate, a penalty not exceeding (exclusive of costs) the sum of twenty dollars for each offence, and in default of payment of the said penalty and costs forthwith, the said penalty and costs, or costs only, may be levied by distress and sale of the goods and chattels of the offender, and in case of there being no distress found out of which such penalty can be levied, the convicting magistrate may commit the offender to the common gaol of the City of London, with or without hard labor, for any period not exceeding six calendar months, unless the said penalty and costs (if any), including the costs of the said distress and of the committal and conveyance of the offender to the said gaol, are sooner paid.

74. Sections 30, 31, 32, 33, 34, 35, 36, 37, 38, 39 and 40 of By-law 4937 relating to the public health, are hereby repealed.

AREAS OF CIRCULAR IRON PIPES

Diam.	Area	Diam.	Area
⅛	.012	22 in.	380.13
¼	.049	½	397.60
⅜	.110	23 in.	415.47
½	.196	½	433.73
¾	.441	24 in.	452.39
1 in.	.785	½	471.43
⅛	.994	25 in.	490.8
¼	1.227	½	510.7
½	1.767	26 in.	530.9
¾	2.405	½	551.5
2 in.	3.141	27 in.	572.5
¼	3.976	½	593.9
½	4.908	28 in.	615.7
¾	5,939	½	637.9
3 in.	7.06	29 in.	660.5
¼	8.29	½	683.4
½	9.62	30 in.	706.8
¾	11.04	½	730.6
4 in.	12.56	31 in.	754.7
½	15.90	½	779.3
5 in.	19.63	32 in.	804.2
½	23.75	½	829.5
6 in.	28.27	33 in.	855.3
½	33.18	½	881.4
7 in.	38.48	34 in.	907.9
½	44.17	½	934.8
8 in.	50.26	35 in.	962.1
½	56.74	½	989.8
9 in.	63 61	36 in.	1017.8
½	70.88	½	1046.3
10 in.	78.54	37 in.	1075.2
½	86.59	½	1104.4
11 in.	95.03	38 in.	1134.1
½	103.87	½	1164.1
12 in.	113.10	39 in.	1194.6
½	122.71	½	1225.4
13 in.	132.73	40 in.	1256.6
½	143.13	½	1288.2
14 in.	153.94	41 in.	1320.2
½	165.13	½	1252.6
15 in.	176 71	42 in.	1385.4
½	188.69	½	1418.6
16 in.	201.06	43 in.	1452.2
½	213.82	½	1486.1
17 in.	226.98	44 in.	1520.5
½	240.52	½	1555.2
18 in.	254.46	45 in.	1590.4
½	268 80	½	1625.9
19 in.	283.53	46 in.	1661.9
½	298.64	½	1698.2
20 in.	314.16	47 in.	1734.9
½	330.06	½	1772.0
21 in.	346.36	48 in.	1809.5
½	363.05	½	1847.4

BY-LAW NO. 5996

To Amend By-law No. 5594 respecting the issue of Licenses.

Be it enacted by the Municipal Council of the Corporation of the City of London, as follows:

1. That by-law No. 5594 respecting the issue of licenses passed on the seventh day of August, 1917, be, and the same is, hereby amended, as follows:

(a) By adding the following sections after section 26 thereof:

26—(a) No person shall carry on the business or calling of a master plumber or journeyman plumber or engage in the work of a plumber unless or until, he or they shall procure a license so to do.

(b) By adding the following sub-sections to section 41 thereof:

"(24) For a master plumber, $25 per annum.

"(25) For a journeyman plumber, $5.00 per annum.

"(26) For inspection, by the plumbing inspector of plumbing ($1.00), one dollar, for inspection of five fixtures, with an additional fee of twenty-five cents for each additional fixture."

No plumbing shall be permitted without an inspection by the Plumbing Inspector, as directed by the By-laws of the City of London.

REGULATIONS OF THE LONDON BOARD OF HEALTH.

PLUMBERS.

1. Every person desiring to carry on the trade or business of a plumber, master plumber, or journeyman plumber, in the City of London, shall register his name and address at the office of the Plumbing Division of the Department of Public Health in the City Hall, under such rules and regulations as the said Department shall prescribe, and shall file at the said office a petition in writing giving the name of the applicant, and, in the case of a partnership, the names of each member thereof, and, in the case of an incorporated company, the name of some shareholder of the company to whom it is desired that a licnese should be issued, together with the place of business, and asking for a certificate that the person to whom the license is to be issued is qualified as a master plumber or a journeyman plumber.

2. No plumber, master plumber or journeyman plumber, who is not already licensed and recognized as in good standing with the Department of Public Health, shall be entitled to receive the certificate referred to in the foregoing section unless he passes an examination to the satisfaction of an authorized Examining Board composed of the Medical Officer of Health (or the Chief Plumbing Inspector) and two plumbers, one to be a master plumber and one a journeyman plumber, of not less than ten years' experience, to be named by the Medical Officer of Health, and the Chairman of the Local Board of Health.

3. If the applicant is found qualified by the Examining Board referred to in the foregoing section, the certificate of such qualification shall be forwarded to the office of the Issuer of Licenses, where it shall remain on file, and the applicant shall thereupon apply to the Issuer of Licenses for a license as a master plumber or a journeyman plumber and such license in the case of a corporation shall be issued to the shareholder named on behalf of the corporation.

4. A partnership of two or more persons desiring to carry on the business or trade of plumbers may do so upon one member of the partnership having charge of or overseeing the plumbing work of the firm obtaining the license hereinbefore provided for, and a corporation may obtain a license on its behalf in the name of some shareholder thereof named in the petition for the license.

5. Any change in the persons composing the firm, or the shareholders representing a corporation, or in the location of the business, shall be promptly reported to the Chief of the Division of Plumbing and Drainage, and also to the Issuer of Licenses.

6. No person shall carry on business as a plumber or Master Plumber in the City of London unless he is the holder of a License as hereinbefore provided; is a resident of the City of London and is of the full age of twenty-one years.

J. H. SAUNDERS, Chairman. W. S. DOWNHAM, M.O.H.

Concrete Sewer Pipes Collapse at Vancouver After Being Down Only Eight Years

New Sewers Costing $58,000 Are Being Recommended—City Engineer Says Old Pipes Should Have Lasted for Twenty Years at Least

VANCOUVER, B.C.—Various concrete sewer pipes in the city, installed eight years ago, proved so inferior and unsatisfactory that they have collapsed. As a result the city council has been asked to ratify the order of the civic Board of Works, that $58,400 worth of new sewers, according to the city engineer, should have proven satisfactory for twenty years. He had a sample of the pipe in his office which crumbled easily under hand pressure, being principally sand, with very little concrete in it.

Seven items were contained in the engineer's report of "urgent" work. The cost will have to be set up in the sewer by-law, which now has approximately $200,000 of a balance.

The largest item is a trunk sewer in Ward Seven, connecting with the trunk sewer at Nootka and Turner streets. It will require a four-foot reinforced concrete sewer at Nootka and a 3½-foot sewer on Venables street and will cost approximately $31,000. The flat area on Dufferin street, from Crown to Main streets, is also to benefit by a new $16,750 sewer on Dufferin street.

Other necessary and urgent sewers are on Vine street, from Fifteenth to Sixteenth avenues, and on Sixteenth from Vine to Yew, the two to cost $4,340; the lane west of Fraser between Nineteenth and Twentieth avenues, to cost $1,830; on Cambridge street east of Wall street, to cost $1,250; on Sixteenth avenue from Laurel to Oak, to cost $2,500, and in the lane east of Main street from Twenty-third avenue to the centre of the block, to cost $730.

The amount for all the work was $58,400, which the engineer recommended as urgent and required immediate attention, breaks having occurred in some of the cases mentioned.

Ontario Society Plans to Extend Its Aggressive Campaign Throughout the Province

Meetings Will be Held With the Men in the Trade to Discuss Organization, Business Methods and Topics of General Interest to All Sanitary and Heating Engineers

WITH the coming of spring the executive officers of the Ontario Society of Domestic Sanitary and Heating Engineers plan to extend the aggressive campaign which was inaugurated and carried out so successfully during the summer and fall months last year. Owing to the unusual amount of illness recently, and the long and very severe winter, it has not been found practicable to make a number of visits to Ontario points that had been contemplated.

However, the matter has not been forgotten at all and stimulated by the success of their past efforts the executive officers are already busy with an aggressive campaign for the coming months.

Made Good Progress

The reports that are being prepared for the coming annual meeting of the Ontario members in April will tell their own story of a busy year's work and of the progress that has been made. Neither hard work nor expense has been shared. to spread broadcast among the sanitary and heating engineers of Ontario the benefits to be derived from working together and following proper business methods.

The response that has been made has been encouraging, and shows what can be done by sticking to the work. It has proved an incentive for further effort, and if the present plans are carried through 1920 from a progress standpoint is expected to be a banner year.

Are Realizing It

Not only by changing conditions, but by seeing the good results that others are obtaining, many of the men in Ontario are realizing that there is only one way to carry on business succesfully these days and make any money, and that is to use practical business methods and to work together. The men in other trades are exemplifying this every day, and are raising the standards of business and getting real results. The same thing is happening in the plumbing business.

Month Just Passed Was a Very Active One in Montreal Plumbing Trade

In Addition to Many New Installations, Permits Have Been Granted in Large Numbers for Alterations Requiring Sanitary Equipment

THE month of February has been a very active one in Montreal plumbing circles. Numerous permits have been taken out of the installation of new plumbing in various residences, flats and also in industrial establishments. In addition to this a large number of permits have been granted for alterations in the above class of building. Among those granted during the month of February the following will be of interest:

M. Belanger has taken out a permit for the plumbing and sanitary work in a house at 2692 Notre Dame Street W., St. Henry. He also has secured plumbing for his adjoining apartment Nos. 2694 and 2696.

A. Gareau has taken out a plumbing permit for a house adjoining 644 Fabre Street.

Wm. Desjardins has secured the plumbing contract for four apartments beginning at 3032 Benoit, St. Laurent, for N. R. Viau.

Arthur Delong has taken out a plumbing permit for general repairs in the recently damaged University of Montreal..

James Ballantyne has taken out a plumbing permit for additional plumbing to Dowd's Brewery, 703 St. Paul St. West.

J. Cuson has taken out a plumbing permit for plumbing at De La Roche, De Fleurinery.

J. B. Staton has secured a contract for plumbing in the apartments of Rock & Sheppard, 293-295 Hampton Ave., Notre Dame de Grace.

E. Lalonde has secured a contract for the plumbing required in cottages on West Hill, N.D.G., for J. Hersey & Son.

J. B. Staton has been awarded the plumbing contract for Roberts & Wilder, 412 Alvard Ave., and also for similar work on Monkland Boulevard.

A. Benard has taken out a permit for repairing plumbing at 125 Bonsecoeur for J. A. Laurente.

A. Small has been granted a permit for the plumbing in a new house for Mr. Milroy, 738 Shuter St.

E. Prosseau has been awarded the plumbing contract for Mr. Dagnais' three storey house, 2019a St. Ubrain.

J. E. Kabelle & Co. have been awarded the contract for plumbing in two flats at 213 Northcliffe St., N.D.G.

J. P. Brunet & Co. have taken out a house plumbing contract for A. Rheaume, 133 St. Laurent St.

John Russell has been awarded a house plumbing contract for Mr. Starnes, 126 Cedar St.

The plumbing contract for alteration in the new premises of Canadian Fur Auction Sales has been awarded to John Burns & Co.; premises located at 130 Lagauchetiere St. W.

M. Belanger has been awarded contract for C. Blais, 2692-94-96 Notre Dame St. W.

M. Walsh & Co. have taken out a permit for plumbing in houses for H. Joseph, 27 Cathcart Street and also 245 University Ave., Montreal.

James Ballantyne has taken out a contract for plumbing for the Bank of Nova Scotia, 263 St. James Street.

H. Gareau has secured a permit for plumbing at 644 Fabre St., for B. Frenette.

John Burns & Co. have secured contract for general alterations in the premises of A. Joyce Regd., 873 St. Catherine St. West.

W. J. Barber & Company have been awarded a contract for plumbing in the house of H. W. Burnett, 315-21 Prince Arthur West.

W. J. Evans has secured a contract for plumbing in the new addition to the Dougall Varnish Company plant, 305 Manufacturer St.

A. Raoust has been awarded plumbing contract for the St. Henry Shoe Company, 366 Greene Ave.

Joseph Pricard has taken out plumbing permit for the work required in the house of O. Preault, 342 Lejeunnesse Street.

T. O'Connell has been awarded the permit for alterations in the plumbing of Benson & Hedges, Ltd., 173 St. James Street.

T. O'Connell has secured a plumbing contract for the new premises of Holt, Renfrew Ltd., in the rear of 401 St. Catherine St. West.

T. O'Connell has been awarded the plumbing contract for the Presbytery being erected in Old Orchard Ave., N.D.G. This being done for St. Augustus' Parish.

Wm. Blackwell has been awarded the plumbing contract for an apartment above Sherbrooke and Milow, in N.D.G., for Geo. E. Blackwell.

Canada Plate is Very Scarce

SANITARY ENGINEER understands that Canada plate is very hard to obtain and that there is bound to be great scarcity of this commodity during the present season. Some supplies will be forthcoming from the English market, it is understood, and a shipment is understood to have arrived at a Canadian port lately of certain supplies, which will be put into trade channels at once. Just what the forward outlook is cannot be determined at the present time, but hope is entertained of some further supplies coming forward.

Danger Lurks in Cheap Gas Tubing

If those in the trade would condemn every attempt to connect gas appliances by means of cheap rubber tubings, there would be less news of deaths from asphyxiation.

Nearly all gas appliances should be connected directly to the supply by means of iron piping. Accidents are almost sure to happen if the use of cheap gas tubing is persisted in. Cheap gas tubing often sold by irresponsible agents and dealers, hardens and cracks in a very short time, and is liable to become a source of danger. It is best to insist on consumers having their appliances directly connected to the piping. but if this is impracticable because of the need to move appliances from place to place, then advocate the use of tubing of known strength and quality only.

The Five-in-One Combination

The following extract taken from report from one of our agents:

IN the past six or eight months we have received innumerable inquiries re our Combination Tubs and Sinks, and builders are specifying these combinations in preference to Roll Rim Sinks.

"In conversation with different customers they mention that in the great majority of cases new homes are being built to accommodate those who in the past have been dwelling in apartment houses and who have been used to this fixture and find it a great advantage and convenience, and in building homes for their own use they insist on having a fixture of this nature installed.

"It has been said that this combination is practically a 'Five-in-One' fixture, namely: Sink, Drainboard, Laundry Tray, Pot-Sink and Infant's Bath, and you can, therefore, readily see that in building a home the builder will specify and install a fixture which will not only give good service, but is at the same time a compact and labor-saving device."

This report we believed to be so interesting to our customers that we have passed it along.

This combination fixture is shown on page 62 in our "For the Home" catalog. Besides being very convenient, it adds wonderfully to the appearance of the kitchen.

Carry the "For the Home" catalog with you and call attention to this combination.

Port Hope Sanitary Mfg. Company, Limited

Factory:
PORT HOPE, ONTARIO
TORONTO SHOW ROOMS
119 King St. East

WINNIPEG OFFICE
405 Tribune Bldg.
HALIFAX, OFFICE: McCurdy Building, Hollis Street

Head Office:
ROYAL BANK BUILDING, TORONTO
MONTREAL SHOWROOMS
234 Beaver Hall Hil

compact, labor-saving

The "Albert" Combination

Made with right or left hand sink. Length over rim 50 in.; width over rim 23½ in. Stands 30 inches from floor to top of rim. Full details on page 62 of "For the Home" catalog.

Port Hope Sanitary Mfg. Co., Limited

EDITORIAL COMMENT

DAYLIGHT SAVING

THE question of whether or not daylight saving is to be in effect this year is coming up for consideration shortly and the usual efforts of the farmers to remain on the present time will be made. All over the country the farmers are preparing to make strong representations against daylight saving. The whole situation will probably hinge on whatever policy is adopted by the railways. The farmers in some cases are trying to argue that if daylight saving must be adopted that it only be adopted in the cities. In the United States the farmers in some sections are openly boasting that they have made city people pay and pay heavily for passing daylight saving measures in opposition to the wishes of those in the rural districts. In New York State they claim that city people paid no less than $25,000,000 last year to farmers who jumped prices to get even with those who carried daylight saving in spite of strong opposition from the country.

A PROGRESSIVE MOVE

A PROGRESSIVE move has been made in Ottawa of considerable interest to all business men in the completion of arrangements for the expropriation of the many toll roads leading into the city. Every road leading into the city has had at least one toll gate so that it was impossible for even a motorcycle rider to enter or leave the capital without paying all the way from ten to forty cents toll. Upwards of fifty miles of highways were owned by private companies. These have been acquired by a Suburban Road Commission which will represent the city of Ottawa, Carleton County and the Province of Ontario. It has cost about $200,000 to secure the roads and eliminate the toll system, but the business men believe that it is money well expended. One of the most important links between the city stores and the rural districts is the highways and anything that tends to limit the number of trips the farmers make to the city directly affects the trade of all merchants. There is little doubt that the collection of tolls worked in this direction and the complete elimination of that system is expected to have a good effect on business, especially now when automobiles are becoming so numerous all through the country. Another good result will be the improvement of the roads taken over. A number of these toll roads still exist in various parts of the country and the example set by Ottawa is one which might well be followed in other places. Business men can take an important step in leading any move which will make for freer or better highways and bring the rural buyers in to their stores.

TO COMPLY WITH ORDER

FOLLOWING a conference of the sanitary engineers of Calgary and district the decision was made to comply with the recent order of the Board of Commerce requiring returns showing the cost and selling price of builders' hardware and materials to be made by March 31. The Calgary plumbers appear to have far more definite information regarding what is required than so far has been available at the Toronto office of the Board of Commerce. As stated in previous issues of SANITARY ENGINEER the Ontario representative of the Board in Toronto was asked if returns were wanted on paints, on heating equipment and on electrical fixtures. He stated that he did not know but would find out and advise SANITARY ENGINEER. Up to the present time no word has been received from him. At Calgary it was stated that returns are required on heating equipment including cooking stoves, and also on electric wiring and fixtures. A very large number of hardware merchants are still unaware that the Board has issued any order. A great many more know about the order but are in the dark as to what is required. The sanitary and heating engineers are even more at sea regarding the matter. It might be a simple matter to set all the men in the hardware trade and also in the plumbing and heating trade right by issuing a really definite statement and seeing that each man who is required to make returns receives proper notification.

THE HOUSING PLANS

ACCORDING to Thomas Adams of Ottawa, town planning adviser to the Commission of Conservation, every one of the nine provinces of Canada has now passed Housing Acts which will permit them during the present season to obtain portions of the grant of $25,000,000 set aside by the Government. He states that there is every indication that the entire Federal appropriation for relieving the scarcity of dwellings will be taken up. It is esti-

mated that in Ontario alone there will be between 4,000 and 5,000 new dwellings erected. Last year about 1,400 dwellings were either built or commenced and ninety municipalities took advantage of the money available for this purpose. There are indications that in some places schedules will have to be revised owing to the largely increased cost of many materials, especially lumber. In some instances committees have already been appointed to report on what course should be pursued.

INDICATES SPLENDID CROPS

THERE is an old saying among the farmers that if snow is plentiful crops will be good. If there is any truth in this Canada should have an unusual harvest this year because reports issued from the meteorological and weather departments show that not in a long time has there been so much snow in the country. In many of the Western provinces well over five feet of snow has fallen during the winter. Throughout Ontario and Quebec the entire country is covered with a heavy mantle of snow. Good crops mean prosperous farmers and prosperous farmers are big buyers. Many merchants have found out just how big the buying power of the farmers has become since the war. Steady and increasing prosperity in the rural districts, and Canada is essentially an agricultural country, means many millions of dollars in active circulation.

FLOATING LOANS AT HOME

THE announcement of Hon. Peter Smith, Treasurer of the Province of Ontario, that the Government intends to float new loans at home and give the business men and the public at large a chance to become subscribers has aroused a good deal of interest. Back of the move, of course, is the effort to get away from unusually high interest charges, which have been increased enormously owing to the rate of exchange against Canada. The success of a number of the cities and towns in floating small loans at home by giving citizens and farmers in the surrounding country a chance to invest at fair rates of interest may be equalled by the Government.

INSIST ON RECEIVING A COPY OF EVERY ORDER

"I ORDERED from a salesman five gross of a certain brand of merchandise upon which I was to get ten per cent. discount. In due time the goods arrived, also the invoice without the discount being allowed, and upon taking the matter up with the manufacturer I was told that no such discount was allowed, and that no mention was made on the order sent in to the firm by the salesman. I did not get a copy of the order so of course had to pay the bill."

The above is a statement by a retailer to SANITARY ENGINEER recently. It goes to show that the retailer cannot be too careful in insisting that he get a copy of every order given to salesmen. It also serves to prove the necessity of incorporating all conditions of sale on every order. The majority of salesmen are perfectly sincere in their verbal agreements upon making a sale, but occasionally a salesman is found, who, through lack of experience or over-enthusiam, or perhaps because he is working on a commission basis, will make any promise in order to get the merchant's name on his order book.

GETTING AFTER COMBINES

DISCUSSING the recent moves of the Board of Commerce the Financial Post Says: "The announcement of the Board of Commerce that proceedings will be taken against trade organizations and associations under the Combines and Fair Prices Act would indicate that belated action is being taken in the right direction. It is to be hoped that in these proceedings a more practical knowledge of what is injurious and what is beneficial in business combinations will be displayed than has marked the investigation of some industries in the past. Canadian manufacturers generally have suffered, and are suffering, through public suspicion created through the unfair operations of a few within their ranks. Business generally will benefit if the offenders can be brought to time.

If the Board is to make its investigation effective it must proceed very carefully and inquire most thoroughly. The majority of trade organizations will undoubtedly be found to be operating for the good, not only of the industry concerned, but also for the benefit of the ultimate consumer. Those which have in view only the increase of profits by artificially established markets, or curtailed output, have no doubt studied carefully the Combines and Fair Prices Act, and have probably secured legal advice as to how to best evade its provisions."

CANADA'S FIRE LOSSES

OFFICIAL figures just published at Ottawa regarding Canada's fire losses for 1919 are significant. In spite of all the fire-prevention efforts that have been made, and it is freely acknowledged that excellent results have been accomplished as a result of the campaigns being carried on, the losses totalled $23,500,000, a waste equal to $2.90 for every man, woman and child in the country. Canada has the highest per capita fire loss in the world, a distinction which is not to be envied. The great bulk of the losses outside of those due to forest fires are in manufacturing plants, warehouses and retail stores. These losses are so large because every time one of them burns, great quantities of merchandise are destroyed.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

Business Changes

Montreal.—W. Chatillon & Co. have dissolved partnership.

Delisle, Saskatchewan.—M. Smith & Co. have purchased the plumbing and tinsmithing business of P. E. Tufts.

Dundas, Ont.—H. W. Kufske, formerly of Kitchener, Ont., has purchased the plumbing business of L. Gies.

New Firms

The S. L. Dobbin Heating and Plumbing Co. has been incorporated at Edmonton.

Smith and McNaughton have opened a shop for plumbing, heating and gas fitting at 15 Quebec St. E., Guelph, Ont.

Trade Notes

The American Radiator Company of Canada, Limited, has been granted permission to increase its capital stock from $500,000 to $1,000,000.

The Empire Manufacturing Company, Limited, of London, Ont., has been granted permission to increase its capital stock from $100,000 to $1,000,000, and also to change its name to the Empire Brass Manufacturing Company, Limited.

The City Brass Foundry Co. has been registered at Toronto.

M. Beatty & Sons, Ltd., foundry, Welland, Ont., has been succeeded by the Canadian Mead-Morrison Company, Limited.

H. N. McAlpine Is Now Sales Manager

H. N. McAlpine, who has been travelling for the Empire Brass Mfg. Co., Limited, of London, Ont., has been appointed sales manager, and in future F. F. Heximer will represent the company in the territory formerly covered by Mr. McAlpine.

Mr. Heximer was in the plumbing business at Niagara Falls for a great number of years.

Price of Gas Is Raised At Peterboro

Peterborough, Ont.—As a result of the rise in price of oils, labor and coal, the price of gas has been raised from $1.75 per thousand cubic feet to $2.00 net. Mr. W. G. Ferguson said that the management of the local gas plant has been forced to raise the price from $1.25 at the outset of the war to the new price by the rise of all things necessary to gas manufacture. The same regulations regarding discount, if paid by a certain date, still exist.

Saskatchewan Sanitary Engineers Call Convention for March 2, 3 and 4

Important Matters in Connection With Organization, Closer Co-operation and General Business Are Coming Up for Discussion

A CONVENTION of the Saskatchewan Society of Sanitary and Heating Engineers will be held at Regina, on March 2, 3 and 4. It was originally planned to hold this gathering on April 6, 7 and 8; but after taking the question up with the Saskatoon Local and with a number of the men in the trade throughout the province, it was deemed advisable to call the meeting earlier.

A number of important matters in connection with the sanitary and heating business are coming up for discussion. There are a number of matters in connection with closer co-operation throughout the province, business system and organization that the executive wishes to discuss with the members, and a large amount of general business.

J. B. Lacroix Joins Inspectors' Forces

Montreal.—J. B. Lacroix has joined the inspection forces of the Sanitary Department of the City of Montreal, with headquarters at City Hall Annex. Mr. Lacroix, SANITARY ENGINEER understands, has been successfully engaged in the plumbing trade for many years, and was the successful applicant out of upward of a dozen, and all of whom had to pass a rigid examination before the vacancy was filled.

John Walker Sees Busy Season Ahead

Montreal.—John Walker, John Street, Que., looks for an active building season in Quebec, and says that there will be a lot of contract work to engage the attention of the trade.

"It has been a busy winter," said Mr. Walker to SANITARY ENGINEER. "We have had eighteen men out on work and this morning there is not one in the shop, if we should be asked to send another one out; they are all out now. This activity has been due to the cold weather in this part of the country, where, for twenty-five days the temperature ranged from 10 to 25 degrees below zero. I expect that there will be a lot of jobbing and contract work in the spring, although it is very difficult to get material."

Wright-Teale Co. Starting At London

Under the firm name of the Wright Teale Co., C. R. Wright and W. Teale are commencing business for themselves at 60 Dundas Street, London, Ont., on March 1. Mr. Teale was with the plumbing firm of Noble & Rich, at London, for eleven years, and has had charge of the plumbing and heating installation in a number of large contracts, including that at the Westminster Military Hospital. Mr. Wright was with the firm for sixteen years in the capacity of bookkeeper. Messrs. Wright and Teale plan to carry on a general business of plumbing and steam fitting.

PLANNING WATERWORKS

Dundas, Ont.—A deputation from the Richmond Hill town council visited Dundas for the purpose of looking over the waterworks system. Richmond Hill is considering the installation of a system.

LETTER BOX

CANE

F. H. Hackman, Esq., Vancouver, B.C. —Please advise where I can procure cane rods with fittings for clearing choked sewers.

These may be procured from Burn Bros., 3 Blackfriars Road, or 6A Stanford Street, London, S.E., England.

Tenders

London, Ont.—Tenders will be called about March 15 by City Engineer H. A. Brazier for the erection of a new comfort station to cost $7,500. Plumbing equipment includes eight lavatories and six urinals. Building to be heated electrically.

Brandon, Man.—The Provincial Department of Public Works will call for tenders in about two weeks for all trades in connection with building of a nurses' home to cost $150,000.

Kitchener, Ont.—Plans are to be prepared at once for an addition to the public school. E. G. Lang, chairman, will call for tenders early in spring.

Garnier, Que.—School board will have plans prepared for two new schools. Joseph Potvin, L'Ascension, P.Q., secretary.

Edmonton, Alta.—W. G. Elliott, 10168 102nd Street, is preparing plans for three dwellings to cost $6,000.

Delia, Alberta.—Tenders are wanted immediately for hot water heating, water system, and electric lighting for new bank costing $20,000 for the Merchants' Bank.

Leamington, Ont.—E. D. Hills is preparing plans for new residence to cost $7,000. Prices wanted on all heating and plumbing equipment.

Montreal, Que.—A. E. Gagnon, 358 Outremont Ave., is preparing plans for several residences and wants prices on heating and plumbing equipment.

Regina, Sask.—Fred. England is preparing plans and will call for tenders in a few weeks for residence to cost $18,000.

Tilbury, Ont. — H. J. Beuglet wants prices on plumbing and heating equipment in connection with new bungalow to be erected in spring at a cost of $6,000.

Incorporations

The H. Mueller Mfg. Co., Limited, of Sarnia, Ont., is increasing its capital stock from $500,000 to $1,200,000, and plans to carry on a general business in brass, iron and steel goods.

The Port Arthur Sheet Metal Manufacturing Company, Limited, capital $40,000, head office Port Arthur, Ont., plans to carry on a general business in sheet metal products.

Montreal Gets New Swiss Consul

Dr. Carl Paul Huedscher has been appointed Swiss Consul-General in Montreal. Dr. Huedscher is a native of Switzerland, where he studied law in the Universities of Lausanne and Basle. From 1907 to shortly before the outbreak of the war he was Attache of the Swiss Legation in Rome and was also connected with the Swiss Legation in Argentinue, Uraguay and Paraguay, being charge d'affaires in the latter country.

In addition to being a diplomat Dr. Huedscher has taken a considerable interest in commercial questions.

Montreal Plumbing By-laws Are Nearing Adoption

New Legislation is Ready for the Civic Commission and Will Come Up for Consideration Very Shortly—No Delay is Expected in Passing Measures

MONTREAL.—In discussing the new Montreal Plumbing By-Laws with Aime Cousineau, director of Sanitary Department for the city, SANITARY ENGINEER was given to understand that the new by-laws are ready for the Civic Commission, and since recommendations have been received from the Master Plumbers, and which are embodied in the draft which is now being submitted, the adoption of these laws should not be far distant. It is simply a matter now of proper consideration of the recommendations to be made through the special committee which will doubtless be appointed. The By-Law is of course a lengthy one and will require careful consideration. As such matters go, the customary delay will likely ensue, but it is earnestly hoped that the adoption of these by-laws will not be unduly deferred.

Mr. Cousineau is very hopeful that the By-Laws will be adopted without delay of much consequence, as he feels that the By-Laws submitted have been very carefully worked out. The adoption of this By-Law will also provide the Sanitary Department of the city as well as the master plumbers, who are desirous of having a good working by-law, that for which they have for many years been longing. It is probable, also, that when the by-law is adopted it will be put in such form that it may be carried in the pocket of a journeyman or a master plumber.

While it is impossible to say just when the By-Laws may be eventually adopted, hope is entertained that this may be arrived at within the next few months at the latest. In view of the fact that the whole Montreal building by-law has been extensively revised, this may be an excuse for holding up the plumbing by-laws more or less indefinitely.

Says Air That is Too Dry in Schoolrooms Has Harmful Effects on Children

Discussion on Ventilation by Prof. J. J. Macleod—Lack of Humidity is Responsible for Irritation of the Mucous Membranes During the Winter Season

THE general impression that ventilation is merely a matter of supplying pure air is entirely wrong, said Professor J. J. Macleod, head of the Department of Physiology at Toronto University, in an illustrated address given at the University buildings. He took the ground that the temperature and humidity of the air are the physical conditions of the atmosphere which are of paramount importance.

ED. J. WANLESS.

Of J. C. Wanless and Sons, Chatham, Ont., honored at Hamilton convention of the Ontario Retail Hardware Association by being elected President.

Observations made very largely on properly selected groups of children have established that for school room air a temperature of 65-68 F. with a relative humidity of 45-60 is the most desirable state, he said, adding that to maintain these conditions throughout the period that the class occupies the class room, usually requires, in this country at least, the addition of a considerable quantity of moisture to the ventilating air. He stated that the air in most of our school rooms in winter is too dry, and under these conditions the mucous membrane suffers.

"There is very good evidence for believing that much discomfort and ill-health could be avoided if people understood more clearly the physical conditions of the atmosphere which bear a relationship to the well-being of the body," said Professor Macleod.

He stated that oxygen deficiency had nothing to do with the evil effects of ill-ventilated places.

"The odor of polluted air has no bearing on its unhealthy influence," he remarked, "except in so far as it excites disgust and puts one off his appetite."

50,000 Tons of Sheets Accumulated Owing to Shortage of Cars

What Will Happen in the Sheet Market? New Business at Pittsburgh is Being Taken on the Open Price Plan

PITTSBURGH.— Accumulations of sheets and tin plates at the makers' mills during the past week have increased alarmingly owing to the lack of care for shipments, and there is sufficient stock now to force reduced production of both products among many of the manufacturers. It is estimated that at least 50,000 tons of sheets are held up in this manner, causing the stringency in the sheet market to become acute. In spite of this, however, there is some forward business being taken in this sheet trade, where old customers are asking for protection beyond the second quarter. In most instances this new business is being taken on the open price plan, the price to be adjusted later.

Somewhat Improved

Sheet bar supply to the mills dependent upon the open market for their source has been somewhat improved, not so much through increased receipts as because of the inability of the mills to run so fully with lack of car supply, which has shortened coal and crowded warehouses and storage capacity with unshipped stocks. Sheet and tin plate manufacturers who are engaged to any extent in the export trade are reporting the present situation regarding foreign exchange is discouraging that business and really acting as a temporary aid for the domestic shortage.

Maximum Prices?

Most of the steel consumers in Pittsburg territory regard the market as having reached its maximum in price advances in so far as basic materials are concerned, and in finished lines any further upward movement will be only a readjustment to cover higher costs. The basis for this belief is the manner in which pig iron and semi-finished steel have acted over the past two weeks. Here and there have been spot sales of steel-making iron at a little advance in the prices, but the bulk of business that has been seriously considered has been clinging close to the $43 base for basic and $42 for Bessemer. Some trading has been on a $41 base for basic for the last half and malleable pig has been unable to rise above $14, and the bulk of the business may be regarded as $43 tonnage or below that figure during the past few weeks.

Semi-Finished Market

In semi-finished steel the contractual obligations of the leading producers not affected by the Steel Corporation influence, have been holding back from any advance. Billets and sheet bars have been taken on the books at $65 maximum for billets and $70 for sheet bars. Occasional sales up to $90 for forging billets and $80 for sheet bars have been reported, but represent the abnormal, not the general trading area of price. The fact that steel is scarce because of lack of fuel and the shortage of cars satisfies the buyers as well as the seller that the advances based on such conditions are not lasting and once car supply increases, a chief cause for the present confused state of trading will be broken and a more satisfactory basis of trade is bound to follow. Shippers are looking for improved car supply with the resumption of ownership of the railroads by the stockholders organization. Preliminary steps to this end have been under way and are really the basis of much of the present acute car shortage which is felt throughout the Pittsburg district, for all roads have been gathering their equipment into their own control as much as possible.

The Pipe Market

The feature of the week in the pipe trade that has aroused interest is the butteweld pipe trade which is wanting to expand along with the building and other lines of industry, but which appears to be caught in a vise-like grip of car and coal shortage, and which is going to interfere with building this year. It is not a question of price but of getting material that concerns the pipe consumer at this time. Small sales of line pipe are being made at premiums varying according to the sizes and the quantity involved. It is noted that the smaller dimensions of tubular goods are the most difficult to place anywhere. Jobbers' stocks have been cleaned up to a remarkable degree.

With More People West Will Expand

Montreal Credit Man Says West in Good Shape With Better Things Ahead—Far West Fast Developing

D. H. GORDON, secretary-treasurer of the Sherwin-Williams Company of Canada, Limited, returning from a trip of several weeks through the Western provinces, is very pleased with the present conditions there, and with the prospects for this season of 1920. Interviewed by SANITARY ENGINEER, Mr. Gordon expressed particular satisfaction with the coast province of British Columbia. "Conditions there are excellent, and fruit-growing, in particular, has made great strides. Much wealth is involved in the development of this industry, and in addition to this the lumbering industry is a growing one, and this being one of the greatest producing provinces in Canada, of lumber, the development will be big in the future. The resources of that province are very great indeed," said Mr. Gordon.

"Vancouver is, of course, a busy place, and is a most substantially-built city. It is bound to develop greatly. The smaller towns, too, have been growing, and are in a thriving condition, business being good.

"What the West needs is more people. There is room in British Columbia for a much larger population, and this will come. When it does, there will be real progress in that country as a result.

The Prairie Section

"Calgary is a thriving business centre and is growing. The conditions there are very excellent and Calgary has a splendid class of business men.

"Winnipeg, of course, is a busy centre, and there is much activity there. Business men are hopeful, and the conditions are very satisfactory."

Asked as to the conditions of credit in the West, Mr. Gordon, while admitting that some places had been hard hit, expressed his belief that there will be a general improvement if a good crop is harvested this year. In spite of the bad crop last year, however, many points have come through well.

Thomas C. Stewart Dies At Woodstock

Following an illness of only a week with heart trouble, the death occurred at Woodstock, Ont., on Monday of Thomas Cook Stewart, director in the James Stewart Mfg. Co., Limited. Mr. Stewart attended the annual meeting of the Ontario Hardware Association at Hamilton and was apparently in excellent health then. He was taken ill soon after his return and grew steadily worse.

He was widely known and esteemed among hardware merchants, having represented his firm on the road for over 40 years.

He was the third son of the late James Stewart, who founded the Stewart Stove Foundry in Hamilton, Ont., almost 70 years ago, and carried it on until the business was removed to Woodstock thirty years ago. Thomas C. was born in Hamilton 76 years ago. Mr. Adam Stewart, of Woodstock, Ont., is a brother.

Water Hammer Action

The Following Article Discusses Water Hammer in an Interesting and Very Practical Manner and Gives Many Facts Which Explain the Theory of This Obscure Action

"WATER-HAMMER action" is the action which occurs in a steam boiler or in steam piping, when a mass of water is driven with considerable velocity against a solid body, or against another mass of water, in such a way as to have its motion suddenly checked or destroyed. Under these circumstances a severe momentary pressure is generated in the region where the collision occurs, just as happens when we bring a heavy sledge hammer down forcibly upon an anvil. If the moving water strikes directly against the boiler shell, the pressure is exerted directly against the shell; while if the moving mass is stopped by colliding with another mass of water, the pressure arises in the midst of the fluid, where the collision occurs. In the latter case, however, a pressure-wave is generated in the water, and this travels forward until it presently comes to bear against the shell of the boiler. In either case, therefore, the shell will be subjected to a shock, as the result of the sudden stoppage of the moving water; and under suitable conditions this shock may be very heavy indeed—quite sufficient, in fact, to rend the boiler.

Conditions for the Development of Water-Hammer Action

It is plain, from what has been said, that the immediate conditions for the development of water-hammer action are two in number. (1) Some portion of the water must be caused to move with a considerable speed, and (2) this moving mass must strike against the boiler, or against another mass of water, in such a way that its own speed is suddenly checked or destroyed. The pressure which is generated is only momentary, but it may be of great intensity during the instant it lasts.

The violent commotion which precedes and leads to the water-hammer effect cannot arise unless there are sensible differences of pressure or of temperature, within the boiler. There can be no water-hammer action, for example, in a boiler whose contents are everywhere at the same temperature and pressure.

In practice we find that the action develops in undrained steam pipes when steam is turned into them, and in boilers which are being cut in with a steam main which is already in communication with other boilers; but in order to realize it, the conditions referred to above must be fulfilled. That is, the water and steam must be at different pressures, or at different temperatures.

When a boiler is cut into a steam main, it will be the difference in pressure which determines the action, provided the pressure in the boiler exceeds that in the main; for when we open the stop-valve under these circumstances the water in the boiler will tend to "lift," and considerable masses of it may be thrown against the shell, with a resultant shock which may be sufficient to produce rupture.

Conversely, if the pressure in the boiler is less than that in the main, the action will be primarily due to the difference in temperature between the steam in the pipe and the water in the boiler. (This will appear later.)

The case in which the pressure in the boiler is greater than that in the pipe, and the action consists in the lifting of the water, is undoubtedly the better understood of the two, and we shall therefore dwell, in this article, upon the second case, in which the pressure in the boiler is less than that in the main. This second case appears to be widely misunderstood by engineers in general and yet it is the one which is most likely to

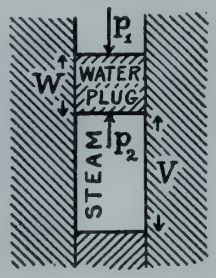


Fig. 1—The Cylindrical Plug of Water

arise in practice; for in firing up a boiler which has been out of service for a time, the attendant is far more likely to cut it in as soon as the pressure approaches that in the main, than he is to wait until it is higher. In fact, it is a more or less common (though highly dangerous) practice, to cut in the boiler as soon as the pressure comes up to within (say) ten or fifteen pounds of that prevailing in the pipe line at the time.

Our attention has been called quite recently to a plant in the South, where the practice was, for a time, to fill up a boiler with comparatively cold water, and then to open its stop-valve at once, so that the steam in the main would assist in bringing the water up to the operating temperature. It seems incredible that this can be true, and the boiler still remain upon earth; but from the representations which have been made to us we are forced to believe it. At all events the practice has been discontinued in that particular plant, on account of certain emphatic counsel given by our inspector. The superintendent of the plant admitted, by the way, that the boiler occasionally "jumped some" while it was being warmed up. Why it didn't jump a couple of miles is a mystery which we cannot solve.

The Two Points of View

We may look at the water-hammer problem from two different points of view. Thus we may ask ourselves (1) what pressure may be produced within a boiler by water-hammer action, or we may ask (2) what is the maximum mechanical work which can be performed, under given circumstances?

The first of these questions cannot be answered with any approach to precision, partly because we never know, in any given case, just how the water in the boiler is thrown about, and partly because the entire theory of impact is still in an imperfect state. Second question can be definitely answered, however, since, in solving it, we do not need to know the exact way in which the disturbance of the water takes place.

We shall take up these two questions in order.

Nature of the Disturbance in the Boiler

The steam which is discharged into the boiler from the main disturbs the surface of the water, and generates waves; and the moment one of these waves breaks, so as to form a sort of bubble enclosing some of the steam, the water-hammer action begins. For, by hypothesis, the water is somewhat cooler than the steam (on account of the original pressure in the boiler being lower than that in the main), and it follows that the steam enclosed within the bubble will condense, leaving a partially vacuous space there. The pressure acting upon the surface of the water will then close the bubble up almost instantly, the water which forms its upper wall being brought down against that which forms the bottom of it, with great speed and corresponding violence. The hammering action thus initiated will increase the disturbance in the water, and larger bubbles will be formed in the same way, with the production of increasingly violent shocks when they collapse.

A more concrete idea may be had of the action by considering the familiar operation of blowing steam into cold water from a small pipe. A bubble of steam forms momentarily, and is immediately condensed by the cooler water, the sides of the bubble coming together with a resounding crack. In the boiler the case is similar, but the experiment is there performed on a terrible scale, with steam furnished by a battery of boilers, through a six-inch pipe (perhaps), instead of a quarter-inch one, and with the bubbles, quite likely as big as water pails, collapsing under a pressure

of 100 pounds or so, per square inch, instead of under simple atmospheric pressure.

Ideal Case of a Cylindrical Plug of Water

In order to estimate the magnitude of the momentary pressure which is produced in the water by these sudden shocks, we proceed as follows:

Consider first the case of a cylindrical plug of water, moving along the interior of a smooth cylindrical tube which it just fills. (See Fig. 1). Underneath the plug there is a space which is filled, at the outset, with steam fresh from the main steam pipe, and having therefore a temperature higher than that of the water in the boiler. Now let us suppose that the imaginary tube in which the plug travels is surrounded by water at the temperature which prevails in the boiler, and that the walls of the tube are not real walls, of metal, but that they are imaginary, permitting the free passage of heat, while not allowing the water composing the plug to flow out sidewise.

Under these circumstances the steam under the plug, being surrounded by water cooler than itself, will partially condense. Its pressure will promptly fall, in fact, to the pressure corresponding to the temperature of the water.

If we represent the pressure in the steam main by p_1, and the reduced pressure below the plug by p_2, and if we also assume that the sectional area of the plug is one square inch, we see that (as indicated in Fig. 2), the plug is subject to a downwardly-directed force equal to p_1, and an upwardly-directed force equal to p_2. Since p_1 is greater than p_2, the resultant force acting on the plug is downward, and equal to $p_1 - p_2$. In forcing the plug downward through a distance of V inches, so as to cause the space under it to disappear, the work done by the steam is therefore $(p_1 - p_2)$ V inch-pounds.

As soon as the plug strikes the water below it, a pressure is produced at the surface where the two come together, accompanied by a local compression of the water along that surface, in the vertical direction. This pressure at the surface of contact acts downward on the free substratum of water, and upward on the water-plug. The motion of the plug is arrested at this point, but the rear (or upper) part of the plug will continue to press forward, for a moment, after the front part has become stationary. So far as the pressure within the water is concerned, the effect will be as though there were a wave of compression transmitted through the water, travelling with the same velocity as sound (since sound is only a succession of compression waves). As soon as the wave of compression has passed back through the plug and reached its rear (or upper) surface, this rear surface will also become stationary, and for an instant the entire plug will be motionless and in a state of uniform compression, like compressive stress to which it is subjected at this instant, by reason of its own sudden loss of momentum is, in fact, the "water-hammer pressure" which we are seeking to determine.

The water below the plug will be compressed, in just the same way as is the water of the plug itself; and since the compression wave will have the same velocity, downward through the free water, as it has backward through the plug itself, it follows that at the moment when the pressure-wave reaches the back end of the plug (the length of which we will call W inches), it will also have penetrated the water below the plug to the same distance. Hence, at the instant the plug comes to rest, there will be a total volume of water under compression, equal to 2W cubic inches (the sectional area of the plug being one square inch); half of this being the volume of the plug itself, and the other half being the volume of that part of the free water which is also at the same time under an equal compression.

If we think of this volume 2W, as being under a momentary uniform compression equal to P lbs. per square inch, we may deduce the pressure, P, by the following process: Let C, be what is termed the "modulus of compressibility"

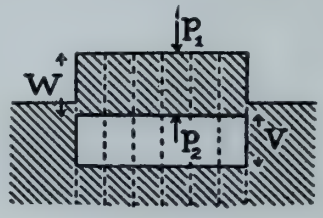


Fig. 3—Oval Bubble

of water. That is, C is the pressure, per square inch, which would suffice to compress the water to nothing, if its diminution of volume, at indefinitely high pressures, should follow the same law which holds for pressures which are moderate. (Of course there is no pressure which actually would compress the water to a zero volume; but the "modulus of compressibility," as defined above, is an exceedingly convenient thing to use, in practical computations.) Also, let x be the amount by which the volume 2W of the compressed water is reduced by the actual (though as yet unknown) pressure P. We then have the proportion

$$P : C :: x : 2W$$

And solving this for x we find

$$x = \frac{2PW}{C}$$

The work done in compressing a liquid is very nearly independent of the way in which the compression is performed. (We mention this, because the fact is quite otherwise with a gas or vapor.) Hence the potential energy stored up in the compressed water will be the same (or sensibly the same) as it would be if we effected the compression slowly and uniformly, beginning with the pressure at zero, and gradually increasing it up to P. Now in this case the average pressure applied would be ½ P; and multiplying this by x (the height by which the volume 2W has been reduced), we find that the total work done would be ½Px. And if we replace x by its value as just found, above, we see, finally, that the potential energy stored in the 2W cubic inches of water under compression is

$$\frac{P^2 W}{C}$$

Now since energy cannot be created nor destroyed, this must be equal to the work done by the steam in pushing the plug to the end of its cylindrical passage and hence we have the equation

$$(p_1 - p_2)\ V = \frac{P^2 W}{C}$$

This, it is to be remembered, is the expression for the pressure which may be produced in the ideal case, in which a plug of water is driven along a cylindrical channel so as to come suddenly and violently against another mass of water of equal cross section, and extending indefinitely in the direction of the length of the channel.

Application to the Actual Case

In order to see how the foregoing formula for P applies in the actual case which arises in practice, let us consider a bubble of rectangular shape, such as is indicated in Fig. 3. This consists, as will be seen, of a sort of slab of water, of thickness W, raised to a distance V. Let us imagine the upper slab, the space below it, and the water which lies below the space, to be divided into imaginary cylindrical tubes, as suggested by the dotted lines. If now, the top wall, or slab, comes down uniformly in all its parts when the bubble collapses, the water in each of these imaginary cylindrical tubes will act just as we have supposed the plug to act, in the ideal tube described above. There will be no sidewise flow of the water, or none of any account, provided the rectangular bubble is big enough in its horizontal dimensions. Hence the formula will be as applicable to this case, as it is to the case of the single plug in its cylindrical tube.

Finally, if the bubble, instead of being rectangular, is more or less oval or ellipsoidal, as in Fig. 4, the pressure actually developed will agree with the calculated pressure to an order of approximation corresponding to the (unknown) degree in which the conditions in the actual case conform with those which were assumed to exist, in deriving the formula.

After the pressure which is due to the impact has been generated, it is transmitted through the water to the boiler shell. In this transmission it will be somewhat lessened in intensity, and it will be propagated mainly in the direction in which the top slab of the bubble collapses.

We have supposed, for the sake of simplicity, that the bubble collapses ver-

tically but since the water in the boiler is thrown about in an utterly indescribable manner, the actual collapse may take place horizontally or obliquely, and hence the maximum pressure may be exerted upon the boiler shell sidewise, or in any other direction.

The formula may be expressed in words as follows: First find the difference (p_1—p_2) between the pressure in the steam main and that in the boiler before opening the valve, and multiply this by the modulus of compressibility of water (C), which may be taken as equal to 300,000 lbs. per square inch. Then multiply again by the depth (V), in inches, of the steam inside of the bubble, measuring this depth in the direction in which collapse takes place. Finally, divide the product so obtained by the thickness of the upper layer (W) of the bubble, in inches, and take the square root of the quotient. The result will be the momentary pressure produced in the water by the collapse of the bubble.

This rule, be it understood, cannot be used to determine anything but the general order of magnitude of the pressures produced by water-hammer. No rule could do more than this, however, when applied to a problem as indefinite as the one with which we are dealing. Yet with all its limitations the rule has a considerable value, since it shows that water-hammer effects may be exceedingly serious, and that we need to guard against their production, with the greatest care.

Numerical Example

Let us now apply the formula to the calculation of the maximum possible pressure which water-hammer might produce, in a particular case. We shall suppose, for this purpose, that a boiler is being cut in with others, and that the pressure it carries is less than that prevailing in the steam main at the time. We shall assume that the pressure in the main is 95 lbs. per square inch, and that in the boiler is 88 lbs. per square inch.

In this example, as in all others of like nature, we shall have to arbitrarily assume the thickness of the bubble and of the top layer thereof. We cannot tell what these thicknesses were, but we must endeavor to choose values for them which might reasonably be expected to occur. Let us suppose that the thickness of the steam-filled portion of the bubble was 6 in., and that of the slab, or top portion, was 3 in. Then our rule works out as follows: The difference between the pressure in the steam main and that prevailing in the boiler just before opening the stop-valve was 95 — 88 = 7 lbs. per square inch. This, multiplied by 300,000, gives 300,000 × 7 = 2,100,000. Multiplying again by the thickness of the steam space of the bubble, we have 2,100,000 × 6 = 12,600,000. Then, dividing this by the thickness of the top layer of the bubble, we have 12,600,000 ÷ 3 = 4,200,000. And, finally, taking the square root of this last number, we have $\sqrt{4{,}200{,}000} = 2{,}049$ lbs. per square inch, which is the maximum pressure which could be developed by water-hammer action in the given boiler, under the assumed conditions. It is evident, here, that we may make very large allowances indeed for the fact that the conditions may not have been just like those presupposed, and yet we shall have a pressure quite sufficient to cause rivets, or any other part of the boiler, to snap at once—especially when we remember that the instantaneous pressure developed by the water-hammer action was in addition to the normal load of 95 lbs. per square inch, which the steam exerted upon the shell directly, as soon as the stop-valve was opened.

Once again we may state that when a boiler is burst by water-hammer action, the pressure which is generated acts only for an instant, and its effect upon the boiler is similar to that of a sudden hydrostatic pressure. That is, it disrupts the boiler, but it does not throw the pieces about. The momentary water-hammer pressure having separated the parts of the boiler, it is the normal steam pressure within the boiler which does the rest of the work.

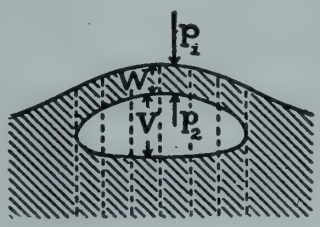


Fig. 2—Rectangular Bubble

The Maximum Amount of Mechanical Work Which Can Be Performed

We come now to the second aspect of the water-hammer question. Namely, we have to look at the case from the following point of view, which is more general than the one from which we have approached it above. A boiler containing a mass of water at a given temperature is placed in free communication with a steam main capable of supplying a practically unlimited amount of steam at a pressure higher than that due to the temperature prevailing within the boiler. As we have here two bodies, or substances, at two different temperatures (namely, the steam in the main and the water in the boiler), the theory of heat teaches us that a certain amount of mechanical energy can be developed, as an accompaniment to the process of temperature-equalization which at once begins. The quantity of mechanical energy which can be so developed, however, is strictly limited by the laws of thermodynamics; and it is not at all difficult to find an expression from which its maximum amount can be calculated.

Let t_1 be the temperature of the steam which is admitted from the steam main —this being constant throughout the entire operation, since the steam is furnished by outside boilers, at a constant pressure and temperature. Also let t_2 be the temperature which the water in the boiler has at the outset, just as the stop-valve is opened. As soon as the steam, at the higher temperature t_1, enters the boiler, it comes in contact with the cooler water there, and begins to condense; and although the heat which it gives out in condensing may be partially converted into mechanical energy, available for throwing water in the boiler about, the major portion of it must go to the direct heating of the water, without the production of any such mechanical work. In fact, the principles of thermodynamics, show that when, in the equalizing process, the incoming steam gives up small quantity of heat—a quantity so small, namely, that it does not materially alter the temperature of the water in the boiler as a whole—we may find the maximum quantity of mechanical energy which can be developed, by multiplying this small quantity of heat (expressed in foot-pounds) by the fraction

$$\frac{t_1 - t_2}{t_1 + 459.7^\circ}$$

the constant number 459.7° being the Fahrenheit temperature of the Fahrenheit zero, on the absolute scale of temperature.

If, as in the example worked out above under the other rule, we take the pressure in the main at 95 lbs. per square inch, and that in the boiler before the stop valve was opened at 88 lbs., we find, by consulting a table of the properties of steam, that the temperature (t_1) of the steam in the main was 334.4°, and the temperature (t_2) of the water in the boiler was 329.5° Fahr. Hence $t_1 - t_2 = 334.4^\circ - 329.5^\circ = 4.9^\circ$, and $t_1 + 459.7^\circ = 334.4^\circ + 459.7^\circ = 794.1^\circ$. With these values of the temperatures, the foregoing fraction becomes equal to 4.9 ÷ 794.1 = 0.00617; so that when the entering steam begins to condense, the first foot-pound of heat which it gives up can generate 0.00617 of a foot-pound of mechanical energy, which can manifest itself by throwing the water about; but the remaining 0.099383 of the foot-pound must pass directly and quietly into the water, without appearing in the mechanical form at all.

As the water in the boiler rises in temperature, owing to the heat which it is receiving from the steam, the same sort of calculation can be made at every stage of the process. The only difference will be that the value of t_2 will increase as the water warms up, while the value of t_1 remains constant. The fraction which expresses the proportion of the heat which can be converted into mechanical energy will grow less, therefore, as the temperatures become equalized. The average value of the expression given above for the efficiency of the conversion is

$$\frac{1}{2}\,\frac{t_1 - t_2}{t_1 + 459.7^\circ};$$

and if we multiply this last expression by the amount of heat given up by the steam, we shall have the total amount of mechanical energy which can be developed, within the boiler as a result of cutting it into the steam line, at a temperature (or pressure) below that of the steam in the main.

Now the total amount of heat which is given up by the steam is equal to that absorbed directly by the water, plus that which is converted into mechanical energy. But since considerably more than 99 per cent. of that which the steam gives up is directly absorbed by the water, we shall not commit any error of the slightest practical importance if we assume, in this particular calculation, that the two are equal. If the average specific heat of the water between t_1 and t_2 is S, then each pound of water, in becoming warmed from t_2 to t_1, will absorb S $(t - t_2)$ units of heat. To express this quantity of heat in foot-pounds, which is a more convenient way for our present purposes, we have merely to multiply it by Joule's equivalent, which we will take at 780 foot-pounds per Fahrenheit heat unit. Moreover, we may take the specific heat, S, of the water as equal to unity. Hence, the total quantity of heat absorbed by the water is 780 $(t_1 - t_2)$ foot-pounds. Assuming that this is equal to the amount given up by the steam (as explained above), we have merely to multiply it by the fraction given in the preceding paragraph, and again by the number of pounds (say w) of water in the boiler, and we have the total number of foot-pounds of mechanical energy which can be developed when the boiler is cut in with its fellows. Thus the expression in question becomes

$$\frac{390w\ (t_1 - t_2)^2}{t_1 + 459.7^\circ}$$

In words, this may be expressed as follows: Find the square of the difference in temperature between the steam in the main and the water in the boiler, multiply this by the number of pounds of water in the boiler, and multiply again by the constant number 390. Then divide the product so obtained by the temperature of the steam plus 459.7°. (Fahrenheit temperatures are to be used.) The result is the greatest possible number of foot-pounds of mechanical work which the water can do, in being thrown about as a consequence of the boiler being cut in before the pressure within it has become equal to that prevailing at the time in the steam main.

Application to a Numerical Example

By way of illustration, we shall apply this formula to the same example as before. We have already found the difference of temperature between the square of this is $4.9 \times 4.9 = 24.01$. We shall throw away the small decimal, and call it 24. We next need to know the total weight of water in the boiler, and for the purposes of illustration we shall take this to be 12,000 lbs. Then proceeding with the application of the rule, we have $12,000 \times 24 = 288,000$; and $288,000 \times 390 = 112,320,000$. We have already found that $t_1 + 459.7^\circ = 794.1$. Hence we have $112,320,000 \div 794.1 = 141,440$ foot-pounds, which is the maximum quantity of mechanical energy which could be developed inside of the boiler, as a consequence of cutting it in with the others before the pressure had become equalized to within less than seven pounds per square inch.

As before, this result is merely a maximum one, but in obtaining it we do not have to make any supposition respecting the proportions of the steam bubbles which are formed. The result is exact, save that we have made certain assumptions of a merely arithmetical nature, in, the interest of simplicity—assumptions which certainly do not affect our conclusion by more than a slight percentage.

A mere fraction of this maximum available amount of work would suffice, without doubt, to start the rivets shearing; and, as we have several times remarked, it is the steam pressure normally within the boiler which throws the parts asunder when once the work of disruption has been well begun. The energy developed directly by the water-hammer does not have to account for any portion of the mechanical work of the explosion, save that which is required to stress some parts up to their breaking points.

We would direct attention particularly to the fact that the quantity of mechanical energy which can be developed within the boiler, and be manifested by throwing the water about with more or less violence, varies as the square of the difference in temperature between the water and the steam. Hence if this difference were twice as great as we have assumed, the quantity of mechanical energy which could be developed, under otherwise similar conditions, would be four times that calculated above.

Can the Water-Hammer Action Be Delayed?

Water-hammer action, if the conditions for its occurrence exist, usually begins the moment the stop-valve is opened. If, however, the pressure in the main exceeds that in the boiler, and the stop-valve is opened cautiously, there appears to be no reason why the steam might not enter quietly. Part of it must condense, of course, on account of the chilling action of the water upon it; but this might conceivably occur without mechanical disturbance, the superficial layers of the water in the boiler becoming heated, so that a sort of equilibrium would be established. If nothing should occur to agitate the water, this state might persist until the entire bulk of the water became heated up to the temperature of the steam in the main; and after that no water-hammer would be possible.

The pseudo-equilibrium thus established would be highly unstable, however, and the least disturbance of the water, by bringing its deeper and cooler layers to the surface, would precipitate water-hammer action at once. It would be only under the most exceptional circumstances that delayed development such as we have suggested could occur, and yet such delay is manifestly possible.

Precautions for the Avoidance of Water-Hammer Action

In conclusion, let us emphasize the fact that it is of exceeding importance, in cutting in a boiler, to be sure that the pressure upon it is as nearly identical as possible with the pressure which is prevailing, at the time, in the steam main. Mathematically, equality can hardly ever be attained, however, partly because commercial steam gauges will seldom agree to within a pound or so. Hence when the equality of pressure is judged to be exact, the stop-valve should be opened very carefully, indeed opened just a bare crack at first, and then, as the slight outstanding difference of pressure equalizes itself, opened wider, very slowly, until it is open full. The complete operation should occupy a couple of minutes or more, and the attendant should hold himself in readiness, at every instant, to close the valve at once, if there is the slightest evidence of any unusual jar or disturbance of any kind, about the boiler.

Excessive Demands For Sap Supplies

The outlook for an exceedingly b-- season in all kinds of sap supplies is forecast. The last season was a very busy one and immense quantities of sap products and all other supplies sold extensively.

In speaking with a large Canadian manufacturer this week, SANITARY ENGINEER was informed that the demands for the present season will exceed those of any previous season. Already immense quantities of sap buckets are going forward, and this applies to various evaporating apparatus. Whether there will be enough material to make up supplies in such quantities as are necessary to supply the big demand, is as yet indefinite. It is not easy to get tinned iron, and supplies are very limited in the hands of manufacturers and jobbers. The material is also higher in price, and in view of the outlook for delivery it is quite probable that before the season begins there will be a shortage of material of a more or less serious nature.

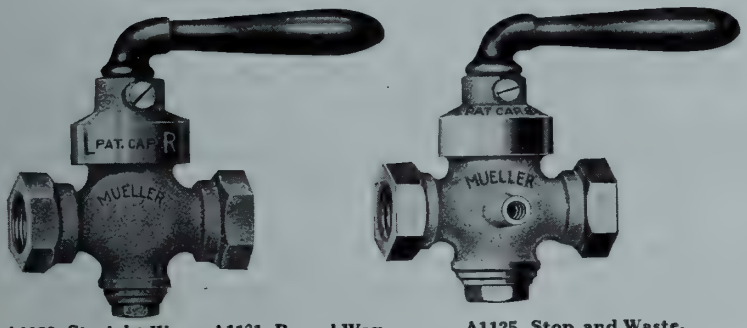
Regina, Sask.—Tenders will be called shortly for new warehouse to cost $75,000 for the Canadian Fairbanks-Morse Co.

Brockville, Ont. — Robert Armour, Pearl Street, is preparing plans for four residences to cost $6,000.

Leamington, Ont.—E. D. Hills is pre-

MUELLER
Ground Key Water Cocks

PATENT CAP
COLONIAL PATTERN



A1120, Straight Way. A1121, Round Way. A1125, Stop and Waste.

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

Dependability of MUELLER Ground Key Water Cocks is assured by the careful process of manufacture, providing the finest of core work thus insuring freedom from obstruction. Uniform thickness of walls is a MUELLER feature in this pattern.

The cocks will not waste from the pressure side at no point during the operation of opening or closing. No other make, to our knowledge, has this feature.

Every cock is tested at 200 pounds hydraulic pressure.

Canadian Money
Canadian Made
Should stay in Canada
For Canadian Trade

H. MUELLER MFG. CO., LTD.
SARNIA, CANADA

Are you on our mailing list?

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

HIGHER quotations are now in effect on all lines of brass valves, on boiler tubes and pipe wrenches. The advance in brass goods include brass steam cocks, globe, angle and check valves and radiator valves and range from five to twenty per cent.

Soil pipe remains unchanged, but it is stated that if materials remain as difficult to secure as they are now and labor costs keep mounting, an advance is inevitable.

Present quotations on enamelware are expected to hold until May 1. About that time, according to reports in the trade, an advance may be expected.

Getting delivery is the big problem with everyone from the installer to manufacturer and there is apparently little hope for improvement in the situation for some time.

Manufacturers are more than satisfied with the prospects for business and some of them are already booked months ahead. Price, they say, is not going to be the big factor in business during the coming months, but rather getting the goods. It is even now impossible to get some lines in anything like the quantity required for work in hand.

In marine business a nice volume of orders has been coming in steadily from the East. On the Western coast things are reported very quiet.

All over the country a big demand is expected for products required in connection with building.

TORONTO, February 28.—While price changes are not numerous, all markets are very firm and from all parts of the country reports are coming regarding the annoyance being experienced by delays in deliveries. Everywhere business is reported good and the men in the trade and the manufacturers are finding the greatest difficulty in finding sufficient goods to even partially fill orders.

During the week advances ranging from five to twenty per cent. have been made in brass valves. Boiler tubes have advanced about fifteen per cent., this being a direct result, it is stated, of the rate of exchange.

Reports indicate that an advance in enamelware may be expected sometime about May 1 and it is stated that unless the situation in regard to the securing of raw materials eases considerably and labor costs cease mounting, an advance must be made in soil pipe.

The markets generally are very firm.

Advance is Made In Brass Valves

BRASS VALVES.—Advances which will work out from five to twenty per cent. are now in effect on various makes of brass valves, including brass steam cocks, globe, angle and check valves and radiator valves. Quotations are now on the following basis:

Compression work, standard	25%
Fuller work, standard	**34%**
Bath cocks, compression	25%
Bath cocks, Fuller	**34%**
Flatway stop and waste cocks, standard	**32%**
Roundway stop and waste cocks, standard	**32%**
Brass steam cocks, standard	plus 10%
Globe, angle and check valves, standard	Net list
Do., removable disc	5%
Radiator valves, standard	**15%-23%**
Do., removable disc	20%-38%
Basin Cocks—	
No. 0 and 1, Fuller pattern	**34%**
Compression	16%
Quick opening	**34%**

Exchange Situation Is Affecting Tubes

BOILER TUBES.—Advances, which, it is stated, are a direct result of the rate of exchange against Canada, are effective in tube prices. While there is a fairly active demand for tubes, deliveries are very slow and letters received indicate that delivery is likely to be a problem for some time. The quotations are as follows:

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	$.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 50	30 00
2 inch	32 00	28 75
2¼ inch	36 00	31 25
2½ inch	45 00	35 75
3 inch	53 00	45 75
3¼ inch	.....	52 50
3½ inch	69 00	48 75
4 inch	96 00	62 50

Soil Pipe Prices Somewhat Uncertain

SOIL PIPE.—Prices of soil pipe, while showing no change, are regarded as somewhat uncertain. Owing to increasing costs and difficulty in obtaining raw materials, it may be necessary before long to revise quotations to a higher level. In the meantime business is active and there is every indication that the demand will perhaps break all records if the building program that is developing proceeds. Following are the present quotations:

Medium and extra heavy soil pipe, 2, 3 5 and 6 in.	**10%**
Medium and extra heavy soil pipe, 4 in.	15%
Medium and extra heavy soil pipe fittings, 2 in. to 6 in	**25%**
8 in. extra heavy pipe and fittings	**5%**

Enamelware Steady; May Advance Later

ENAMELWARE.—With a fairly good volume of business offering and prospects for a heavy demand later, quotations on enamelware remain steady. No change is looked for until about May 1, when, according to reports that are current in the trade, a revision upwards is not unlikely. Quotations on some of the well-known lines are as follows:

Bath tubs, roll rim, 4. 4½, 5 feet, 24 to 30 in. wide			**$37 05**
Bath tubs, 5½ ft.			**41 20**
Lavatories—			
17x10" Apron F139 or P4.45			11 05
18x24" Apron F154 or P3845 or P3847.			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9.05
Sinks, roll rim, 18 x 30 in			16 60
Sinks, flat rim—	**1 only**	**2 only**	**3 only**
16 x 24	**$5 40**	**$5 35**	**$5 30**
18 x 30	**6 20**	**6 50**	**6 10**
20 x 30	**7 10**	**7 05**	**7 00**

No Change Shown In Pipe Fittings

PIPE FITTINGS.—There is no change shown in the quotations on pipe fittings. Business is showing considerable activity and in some sizes supplies are none too plentiful. Prices are as follows:

PIPE FITTINGS

Cast iron fittings	5%
Plugs	17½%
Bushings	20%
Unions, ¼-in. to 2½-in.	35%
Do., ⅛-in. to 3-in. and larger	30%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%
Do., 4½-in. and larger	10%

MALLEABLE FITTINGS

	Black	Galv'd
Malleable Fittings, Class A, lb.	$0 60	$0 75
Do., Class B, lb. net	0 27	0 37
Do., Class C, lb. net	0 18	0 27

A Reliable Indication of Good Indicators

Morrison Gauges

include gauges for every conceivable purpose —for indicating or recording:—pressure, temperature, altitude, revolutions, etc.

These well-known, reliable gauges sell well because they are regarded by mechanical men as standard.

There is hardly a requirement for gauges that you cannot supply with Morrison Gauges. With the Morrison line you can make a sale of every order and most inquiries.

James Morrison Brass Mfg. Company
LIMITED
93-97 Adelaide Street West - - Toronto

Operating on Natural Laws.

ANTHES SYPHONS

are the heart of the sewage disposal system. Anthes Syphons, operating purely on natural laws with no moving parts to get out of order and being made seamless in one piece, have a variety of "points" that account for their great popularity, wide use and great sales.

We will furnish you with Sewage Disposal Blueprints on request.

Anthes Foundry Co., Limited
Toronto and Winnipeg

Wire Solder Is Revised Upwards

LEAD AND ZINC PRODUCTS.—Further advances have taken place in solder. This is said to be due to the recent higher prices attained in the basic metals. Guaranteed solder is quoted at 43¾c per lb.; wiping solder at 37¼c per lb. and wire solder at 45¾c per lb.

Jobbers state that the demand for all products is fairly heavy for this season of the year, although they claim the shortage of cars, slow movement of freight and other factors are to some extent the cause of slacker business than would otherwise be under more favorable circumstances.

The following are the present new quotations:

Lead pipe, list, per lb.	$0 16
Lead waste pipe, list, per lb.	0 17
Do., over 8 inches, list, per lb.	0 18
Above subject to discount of 10 per cent.	
Lead traps and bends	add 10%
Lead wool, lb.	0 16
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, per lb.	0 12½
Cut sheets, ½ to ¾c lb. extra, and cut to size 1c lb. extra.	
Solder, wire, lb.	0 45¾
Solder, strictly, lb.	0 40½
Solder, commercial, lb.	0 38
Zinc sheets, per lb.	0 19
Solder, guaranteed, lb.	0 43¾
Solder, wiping, lb.	0 37¼

Range Boilers Are Holding Unchanged

RANGE BOILERS.—Difficulty is being experienced by manufacturers in obtaining much needed supplies of raw materials, and this in turn makes slow deliveries to the men who do the installing. Prices are very firm, but show no change, the quotations being as follows:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$12 00	$14 00
35-gallon	14 00	16 00
40-gallon	16 00	18 00
52-gallon	22 00	25 00
66-gallon	35 00	38 00
82-gallon	40 00	47 00
100-gallon	50 00	58 00
120-gallon	60 00	67 00

Wrought Pipe Is Somewhat Scarce

WROUGHT IRON PIPE.—No changes have been made in prices of wrought iron pipe, but a scarcity is being experienced in obtaining many sizes. Deliveries at best are slow, especially shipments coming from the United States and the rate of exchange is a factor that has to be reckoned with also. Business is active, unusually so, it is stated, for so early in the season and with a scarcity now there is no telling what may happen later. Quotations are as follows:

PIPE — WROUGHT
Price List No. 43 — Feb. 3, 1920
STANDARD BUTTWELD S/C

	Steel Black	Steel Galv.	Gen. Wrot. Iron Black	Gen. Wrot. Iron Galv.
⅛-in.	$6 00	$ 8 00	....	....
¼-in.	4 83	5 96	$ 5 31	$ 7 44
⅜-in.	4 83	6 96	5 31	7 44
½-in.	6 42	7 99	7 10	8 67
¾-in.	8 11	10 24	9 03	11 16
1- in.	11 99	15 13	13 35	16 49
1¼-in.	16 22	20 47	18 06	22 31
1½-in.	19 39	24 48	21 59	26 68
2- in.	26 09	32 93	29 05	35 89
2½-in.	41 24	52 07	....	....
3- in.	53 93	68 09	....	....
3½-in.	68 54	85 56	....	....
4- in.	81 21	101 37	....	....

STANDARD LAPWELD S/C

	Steel Black	Steel Galv.	Gen. Wrot. Iron Black	Gen. Wrot. Iron Galv.
2- in.	$29 79	$36 63	$33 49	$39 96
2½-in.	43 58	54 71	49 43	60 26
3- in.	56 99	71 15	49 43	60 26
3½-in.	70 38	87 40	79 58	96 60
4- in.	83 39	103 55	94 29	114 45
4½-in.	95	1 19	1 20	1 45
5- in.	1 10	1 39	1 40	1 69
6- in.	1 43	1 80	1 81	2 19
7- in.	1 87	2 36	2 34	2 83
8-L	1 96	2 48	2 46	2 98
8	2 26	2 85	2 84	3 43
9	2 71	3 42	3 40	4 11
10-L	2 51	3 17	3 15	3 81
10	3 23	4 08	4 06	4 90

Terms—2% cash discount if paid within 30 days. Approved credit.

Firm Markets For Sheets and Plates

SHEETS AND PLATES.—The market for sheets and plates is very firm and reports indicate that there is an unusually active demand with small supplies on hand with which to fill it. In some cases premiums are being paid to get the goods. The following quotations are nominal only:

BLACK SHEETS

14 gauge	....	8 00
16 gauge	....	8 10
18-20 gauge	....	7 45
22-24 gauge	....	7 55
26 gauge	....	7 60
28 gauge	....	7 75
3-16 inch plate	....	....
¼-inch boiler plate	....	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$10 00	$10 60	$9 75	$10 45
U.S. 28	9 60	10 20	9 30	9 75
U.S. 26	9 30	9 90	9 05	9 40
22 and 24	9 15	9 75	8 90	9 20
18 and 20	9 00	9 60	8 75	9 00
16	8 35	9 45	8 60	8 80
12 and 14	8 20	8 70	8 20	8 55

Deliveries Are Slow On Conductor Pipe

EAVESTROUGH AND CONDUCTOR PIPE.—Deliveries are slow on these lines and great difficulty is being obtained in many instances in obtaining anything like the supplies required. Quotations are unchanged and are as follows:

PIPE (Conductor)

Plain		
2 in., in 10-ft. lengths, list	....	8 00
3 in., in 10 ft. lengths, list	....	9 70
4 in., in 10-ft. lengths, list	....	12 80
5 in., in 10-ft. lengths, list	....	17 50
6 in., in 10-ft. lengths, list	....	21 30

F.o.b. Toronto, Ottawa, Oshawa.
Net list.
Add 5% to above list.

New Prices Named On Hose Clamps

HOSE CLAMPS.—The new prices on hose clamps are as follows: ½-inch galvanized, $4.75 gross; ⅝, $5.40 a gross; ¾, $5.40 a gross; 1 inch, $9.50 a gross; 1¼, $1.50 a gross; 1½, $1.80 a gross.

Higher Quotations On Friction Tape

FRICTION TAPE.—New and higher prices have been announced on friction tape. The half-pound rolls up to 49 lbs. are quoted at 71c per lb.; 4-ounce rolls, 73c a lb.; 2-ounce rolls, 76c a lb.; 1-ounce rolls, 82c a lb. net.

Scrap and Waste Are More Active

SCRAP AND WASTE MATERIALS.—The price on these commodities remain unchanged, although quotations at present are very firm. The present movement is reported to be rather brisk, and big business is looked forward to with very much confidence by the majority of dealers.

The price tendencies are of a m firmer nature and new and higher prices in the near future would not be surprising.

The following are the present quotations:

DEALERS' BUYING PRICES

Pipe scrap	....	11 00
No. 2 busheling	....	13 00
Stove plate, per ton	....	18 50
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 08
Scrap zinc	....	0 06½
Heavy copper	....	0 17
No. 1 machinery cast	....	24 00
Wrought iron, No. 1, per gr. ton	....	15 00
Heavy melting steel	....	15 00
Heavy lead pipe	....	0 06
Old rubbers, boots and shoes	....	0 06
Overshoes. lumbermen's rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 04
Heavy lead pipe	....	0 06

CONTRACTS AWARDED

Hamilton, Ont. — R. McCardle has plumbing and Robert Dow heating for new apartment costing $17,000, for Horace Hazel, Caroline and Bold Streets.

Ottawa, Ont.—J. R. Maclennan has plumbing and J. R. Cameron the heating for two residences costing $11,500 for M. E. Davies, 33 Bellwood Avenue.

Toronto, Ont.—Robert Steen has heating contract for residence costing $12,000 for J. A. Gordon, Delisle Ave.

Wilcox, Sas.—Waterman & Waterbury, 118 Donahue Block, Regina, have general contract including plumbing and heating for new school costing $25,000.

Fergus, Ont.—James Gow has been awarded contract for building new reservoir for the town council.

Toronto, Ont.—A. J. Wise Heating Co. has plumbing and heating for two residences costing $8,000 for I. Broadway, 433 Kingston Road.

Toronto, Ont.—Leslie Bros. have heating contract for bungalow costing $6,500 for H. A. Johnston, 404 Lake Front Road.

Toronto, Ont.—Douglas Bros. have heating and plumbing for two residences costing $10,000 for W. Simpson, 117 Balliol Street.

Toronto, Ont.—J. Barrett has the plumbing and Leslie Bros. heating for four residences costing $28,000 for W. Summerville, 258 Danforth Avenue.

Outremont, Que.—Lalonde & Dueau have plumbing and heating contracts for twelve residences costing $120,000 for the City Housing Commission.

Three Rivers, Que.—Germain Freres have heating and plumbing contract for residence costing $4,000 for L. E. Denoncourt.

Sir Thomas White Will Be Next Premier

THIS prediction is made by J. K. Munro in the March 1st issue of MacLean's, now on sale. He carefully reviews the situation that has developed at Ottawa and indicates the straws which show that the wind is setting in the direction of the Ex-Finance Minister: A clear and shrewd summing up of the situation written in semi-humorous vein.

This article is one of a great many unusual and vital articles in this number. For instance:

Pellatt the Plunger

By J. L. Rutledge

A very readable sketch of the picturesque Toronto financier, containing some stories that have never before been told.

All We Like Sheep

By Nellie L. McClung

A humorous account of a rather sad investment.

Balking the Bootlegger

By Guy E. Morton

An article on the methods followed in detecting the illicit sale of liquor; interesting and amusing.

Stories by Basil King, Camilla Kenyon, Robert E. Pinkerton and E. Llewellyn Hughes.

The World in a Nutshell

One of the best features in any magazine the world over is the "Review of Reviews" department, which gives the best articles from all periodicals in condensed form. Some of the reprinted articles found in this number are:

News Dealers often run short of copies of MacLean's.

Get yours early.

And remember that the big March 15th issue will be on the news stands in two weeks time.

The True Story of the Czar's Death
Noske, Dictator of Germany
Is a Cataclysm Coming?
The Spy Behind the Lines
Peace Treaty Must be Remade
The Motor Car of To-morrow
A City Under Soviet Rule
The Camel of the Frozen Desert
Idiosyncrasies of Your Eyes
Bolshevism is Drawing Back
Moving Pictures at 250 to the Second
First Case for the League of Nations
New Form of Cure Found
New Scientific Discovery—Bending of Light
Lenine, His Life and Work
Will Find Records of Great Antiquity

Over 80,000 Canadian Familiess Read

MACLEAN'S

"CANADA'S NATIONAL MAGAZINE"

March 1st Issue *Now on Sale At All News Dealers* ***20c.***

QUICK SERVICE
Save Customer a Long Delay
CON-VENIENCE
No Need to Send for New Parts
RESULTS
Boiler Never leak Will Stop Leaks Where All Others Fail
$ 1,000,000. GUARANTEE
Protects You From Loss
PROFIT
Make $50.00 In One Hour's Time
Here are 5 Big Reasons for Choosing BOILER NEVERLEAK
SOLD BY JOBBERS ALL OVER THE U. S. AND CANADA.
ASK YOUR JOBBER FOR IT.
BOILER NEVERLEAK
A LIQUID
POSITIVELY
STOPS LEAKS

You can place fullest confidence in BOILER NEVERLEAK. You take absolutely no risk in using this phenominal preparation which has consistently succeeded in stopping leaks in steam and hot-water heating boilers. Some of the cures have been so wonderful as to seem almost magical.

Fitters are getting the habit of using BOILER NEVERLEAK first in repairing bad breaks because it makes a permanent repair, saves sending for expensive parts, and saves customers time. *$50 may easily be made in one hours time with a can of BOILER NEVERLEAK and a pipe wrench.*

Remember, BOILER NEVERLEAK is backed by a *$1,000,000 Guarantee*, which protects you against risk or loss. You can't loose! BOILER NEVERLEAK succeeds where all others fail. It is the best that can be produced by specialists in neverleak products for twenty-five years.

SEND FOR FREE CAN OFFER.

BUFFALO SPECIALTY COMPANY, 352 Ellicott St., BUFFALO, N. Y.

BOILER NEVERLEAK

Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?

Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

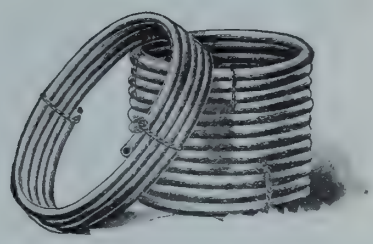
Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE: 136 SIMCOE ST., TORONTO

Sanitary Engineers—

We manufacture ONLY white metal alloys. Therefore by using our products you get the quality which goes ever with specialization.



LEAD PIPE, TRAPS, BENDS, SHEET,
BLOCK LEAD, WIPING SOLDER

HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG

"VALVENE" Discs (REGISTERED)

Specially prepared for Hot and Cold Water Taps. All sizes from ½ inch to 1½ inches. Soft, Pliable, and "Joint-Perfect."

Price List and Samples on Application.

THE COMMERCIAL INDIA RUBBER MANUFACTURING & SUPPLY CO., LIMITED

SOLE MANUFACTURERS

586 Commercial Road London, E 1.

Have You Taken Down Your Sign?

A prominent merchant who has made a great success of all branches of his business has said that withdrawing advertising from a good trade paper is like taking down your sign. Advertising to the trade you serve is business insurance, but premiums must be kept up or the policy will lapse.

There never was a time when the trade was keener for business information. That is why the advertising pages of the Sanitary Engineer are being followed so closely at the present time.

The Trade K-T Mark

K-T

FOUNDRY

GALT ONT.

STANDARD

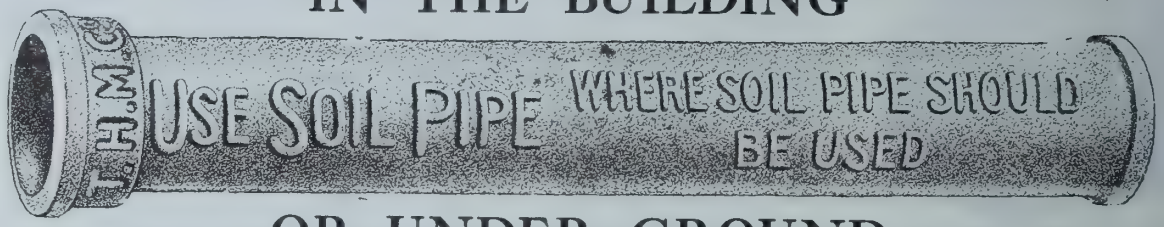
Soil Pipes and Fittings are of pleasing design and good finish. They look good and they **are good**

SPECIALS

Range Boiler Stands are adjustable to 30-35-40 gallon boilers, and you can connect directly under the boiler. Inexpensive but flawless.

Your jobber can supply our goods--if you ask for them

IN THE BUILDING



OR UNDER GROUND

ASK YOUR JOBBER FOR T.H.M. CO. BRAND OF SOIL PIPE AND FITTINGS.

TORONTO HARDWARE MFG. COMPANY, - Toronto, Canada

WE MANUFACTURE A FULL LINE OF HIGH-GRADE RANGE BOILERS

WROUGHT PIPE

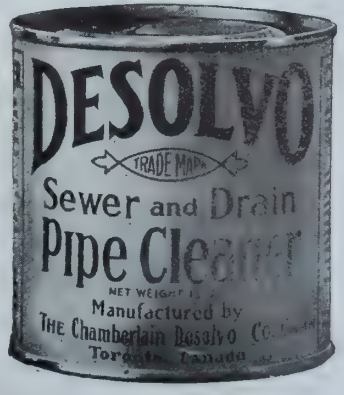
BLACK and GALVANIZED SIZES, 1 8 IN. TO 4 IN.

All our pipe thoroughly inspected, tested to 600 lbs. hydraulic pressure and branded.

All Sizes of NIPPLES (Black and Galvanized)

Ask your jobber for CT *Brand of Wrought Pipe*

CANADIAN TUBE & IRON CO., LIMITED, MONTREAL Works: Lachine, Can.



Has Big Sales

Because It Clears Clogged or Frozen Pipes Quickly

Desolvo belongs in that class of goods you like to sell—it goes "right to the spot" with customers because it exactly fills the need for clearing clogged or frozen pipes without expensive plumbing bills.

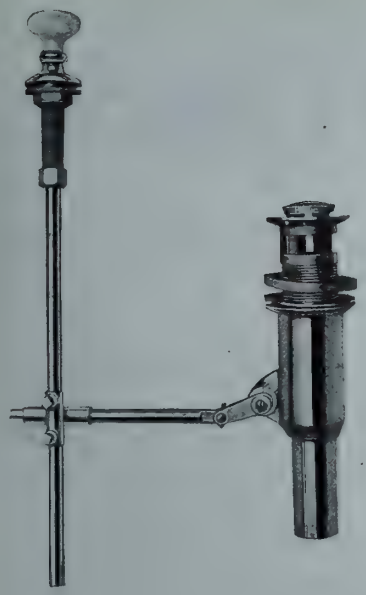
At your jobbers.

The Chamberlain Desolvo Co., Limited

110 Church St., Toronto

Eastern Representative: Richardson & Bureau, 55 St. Francis Xavier St., Montreal.

Ontario and Western Representative: L. F. Mayne, 99 Quebec St., Toronto.



ALLINGHAM POP-UP WASTE

DESCRIPTION

Allingham Pop Up Waste (Patented), Nickel-Plated, with China Waste Knob, indirect action (raising knob closes plug, lowering knob opens plug).

MEASUREMENTS

Diameter of flange under waste knob 1¾ inches. Diameter of flange inside hole 2⅛ inches. Diameter of flange below bowl 2⅜ inches. Outside diameter of outlet tube 1¼ inches.

The Allingham Waste is sanitary. The Waste Plug can be removed and cleaned without touching other parts. It is simple and mechanically correct. It is easily adjusted for friction or lift rod. It is reversible and can be easily changed from indirect to direct action if desired.

The Wallaceburg Brass & Iron Manufacturing Co., Limited

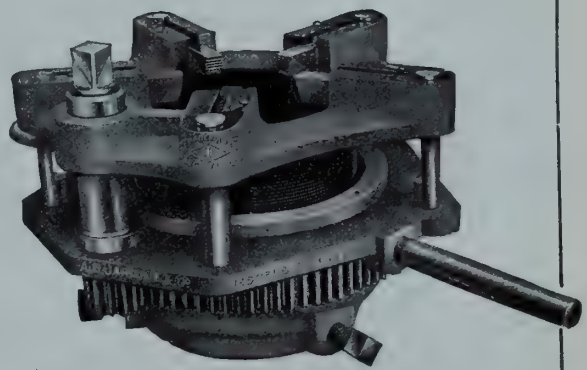
WALLACEBURG, ONT.

TORONTO
10 Wellington St. E. Phone: Main 2355
Mr. L. N. Vanstone

WINNIPEG
Galt Building Phone: Garry 3389
Moncrieff & Endress, Ltd.

MONTREAL
358 Beaver Hall Sq. Phone: Main 7513
J. R. Devereux & Co.

JARDINE and TOLEDO PIPE THREADING TOOLS



"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2 to 6 in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo have no cams or jim cracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

SEND FOR CATALOGUE

A. B. JARDINE & COMPANY, Ltd., HESPELER, ONT.

Sole makers of "Jardine" Pipe-Threading Tools.
Sole licensees to manufacture and sell Toledo Pipe-Threading Tools in Canada.
Agents, Winnipeg and West—Stanley Brock, Ltd., Winnipeg, Man.
Brockville and East—J. R. Devereux, 358 Beaver Hall Square, Montreal.
Belleville and West—W. H. Cunningham & Co., 183 Church St., Toronto, Ont.

AIR CONDITIONING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR RECEIVERS
Wm. B. Scaife & Sons Co., Oakmont, Pa.

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
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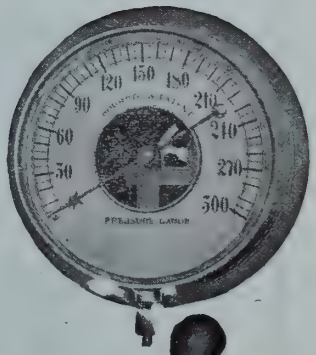

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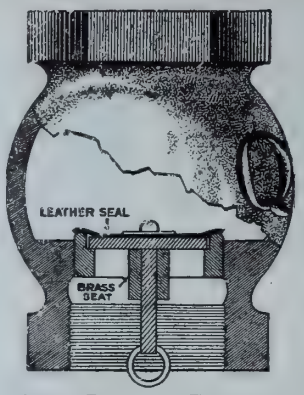

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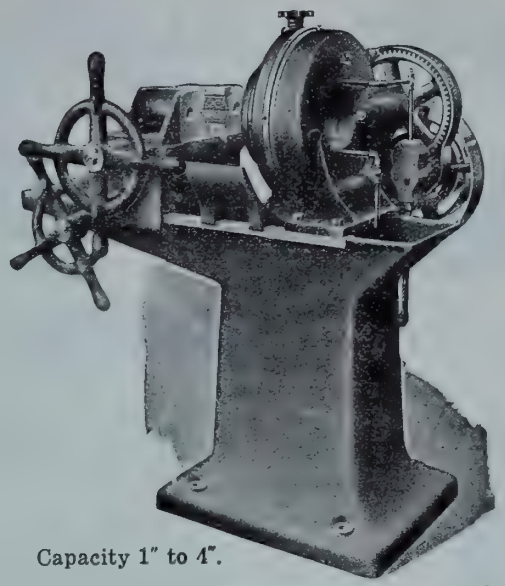

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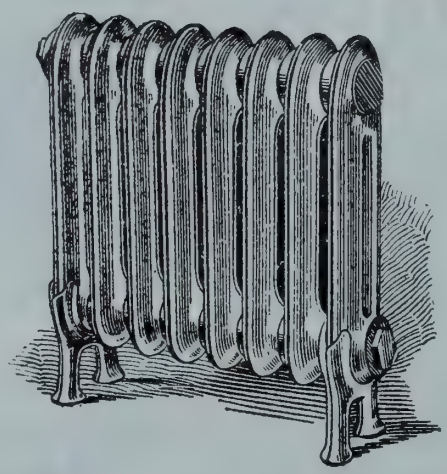

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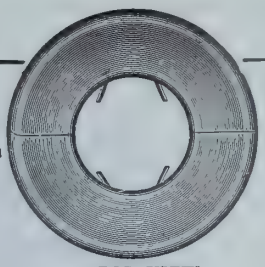

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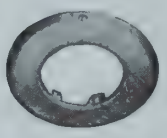

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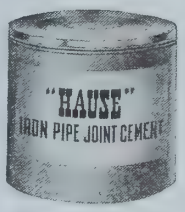

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Canadian Distributors:

Empire Manufacturing Co., Limited

LONDON and TORONTO

CRANE FITTINGS

CRANE LIMITED

HEAD OFFICE & WORKS
1280 ST. PATRICK ST
MONTREAL

Branches: Toronto, Winnipeg, Vancouver.
Sales Offices: Halifax, Quebec, Ottawa, Calgary.

CONDENSED ADVERTISEMENT

FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

BOOKS

on all branches of Engineering and every conceivable subject. Second-hand at half prices. New at lowest prices. State wants and send for Catalogue No. 23, post free.

WE HAVE THE BOOKS YOU WANT.
Books Bought. Best Prices Given.
W. & G. FOYLE, Ltd.,
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WHEN ANSWERING ADVERTISEMENTS KINDLY MENTION NAME OF THIS PAPER

WE CARRY A FULL LINE OF

BOILERS, RADIATORS, WARM AIR FURNACES AND REGISTERS

HAMILTON STOVE AND HEATER COMPANY, LIMITED, HAMILTON, CANADA

Pipe Fittings

Made in Canada

The Brand that has the Quality

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

CAST IRON FITTINGS

With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS

With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

There Are Lots of Gate Valves

Advertised and Sold

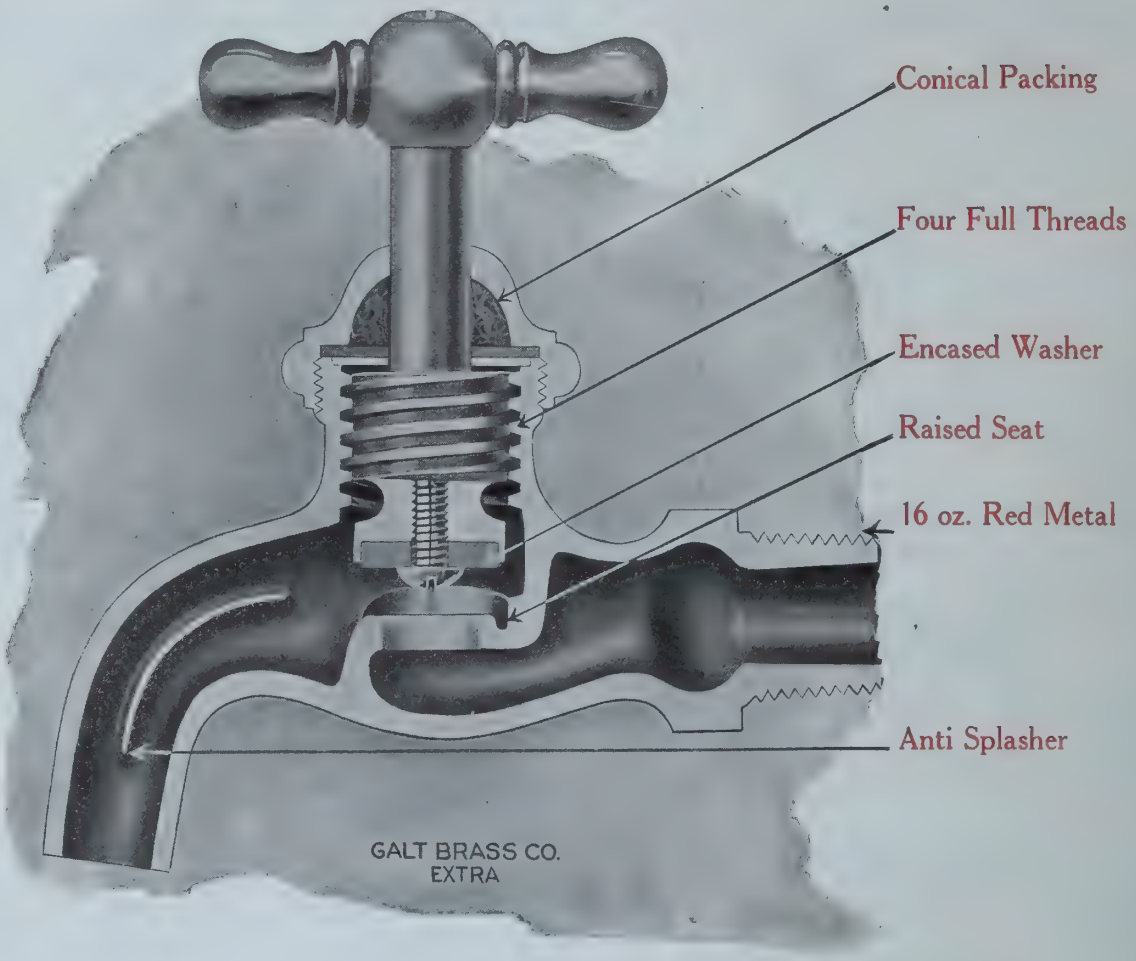
but not all of them possess that neat appearance, combined with strength and stability, which characterizes

KERR IRON BODY GATE VALVES

Specify KERR'S (KEYSTONE) Iron Body Gate Valves on your next order, and let us prove what we claim for them.
Our Catalogue No. 5 tells all about them. It is yours for the asking. Write us to-day.
Approved by the Fire Underwriters' Association, and Registered by Boiler Inspection Departments of Ontario, Saskatchewan and Alberta.

THE KERR ENGINE COMPANY, LIMITED - Walkerville, Ontario

Your Sales Depend on Grade of Goods Stocked



To allow a customer to leave your store not entirely satisfied means a dead sale for you, because nine times out of ten he will never return to do business with you again. Moral—Stock "Perfecto" Goods.

There is no better grade line of taps than those carrying this trade mark.

Some of the many splendid selling features of this line are the conical packing, four full threads, washer encased in bib, raised seat, Briggs Standard Thread, and anti-splasher.

Stock "Perfecto" Lines

Your customers will appreciate their value—you will increase your sales.

GALT BRASS COMPANY LIMITED

GALT - CANADA

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, MARCH 15, 1920 No. 6

Beauty plus Efficiency

Our aim to supply Sanitary fixtures that meet every requirement and combine beauty of design with efficiency of operation is well brought out in this Empire "Atlantic."

This fixture is absolutely efficient, non-corrosive, durable and sanitary.

The highest quality materials are used in its manufacture. Note the DOUBLE WAVED Vitreous China Tank and the SQUARE BASE bowl. Every feature of this fixture is the most modern obtainable. The trimmings are nickel plated.

It is so easily kept clean that it practically never loses its bright, new appearance.

All Empire fixtures are thoroughly tested before leaving the factory and are backed by the Empire guarantee.

We guarantee prompt shipments. Write for our illustrated catalogue.

Empire Manufacturing Co., Limited

LONDON and TORONTO, Canada

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, Nova Scotia

AGENCIES:

ONTARIO:
Monarch Brass Mfg. Co., 71 Brown St., Toronto

MANITOBA and NORTHWEST:
E. B. Plewes, 120 Lombard St., Winnipeg

TINKER TOM'S TALKS.

No. 250

It may strike you as rather queer that we who are manufacturers of Galvanized Steel Sheets should recommend—

TONCAN METAL

ANTI-CORROSIVE GALVANIZED SHEETS

But we know that in certain exposed places where corrosive conditions are excessive, longer life and reduced cost may be had by using Toncan Metal Galvanized Sheets.

These will be **GALVANIZED IN CANADA** and carried in stock here, and in addition stocks will be carried by jobbers at logical points.

Send for text-book on Corrosion.

Tinker Tom

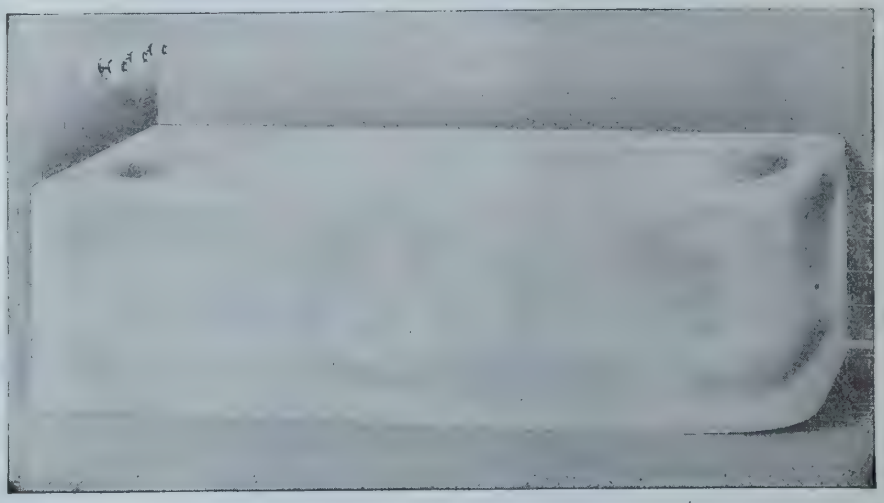
Look for Talk No. 251 next issue.

DOMINION SHEET METAL CORP. LTD
MADE IN PREMIER CANADA
HAMILTON, CANADA.

SANITARY ENGINEER, March 15, 1920, Vol. XIV., No. 6. Published 1st and 15th of every month at 143-153 University Ave., Toronto, by the MacLean Publishing Co., Ltd. Yearly subscription price, Canada, $1.00; United States, $1.50; Great Britain and the Colonies, 4s. 6d.; elsewhere, $2.00. Entered as second-class matter at the Post Office, Ottawa. Entered as second-class matter July 1st, 1912, at the Post Office at Buffalo under the Act of March 3rd, 1879.

"Standard"
"Perfection" Built-in Baths

Made in One Piece Enamelled All Over



These Baths represent the last word in design and finish, and are made to build into Right or Left Hand Corner or into a Recess.

The "Perfection" Built-in-Bath is only 17½ inches high, therefore convenient. It builds into walls and floors, the absence of all dust-collecting cracks and corners meaning bathroom sanitation.

Made in 5 and 5½ foot sizes.

Illustrations on request.

Write the nearest dealer

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ontario

Toronto Store:
55-59 Richmond Street East

Winnipeg Showrooms:
76 Lombard Street

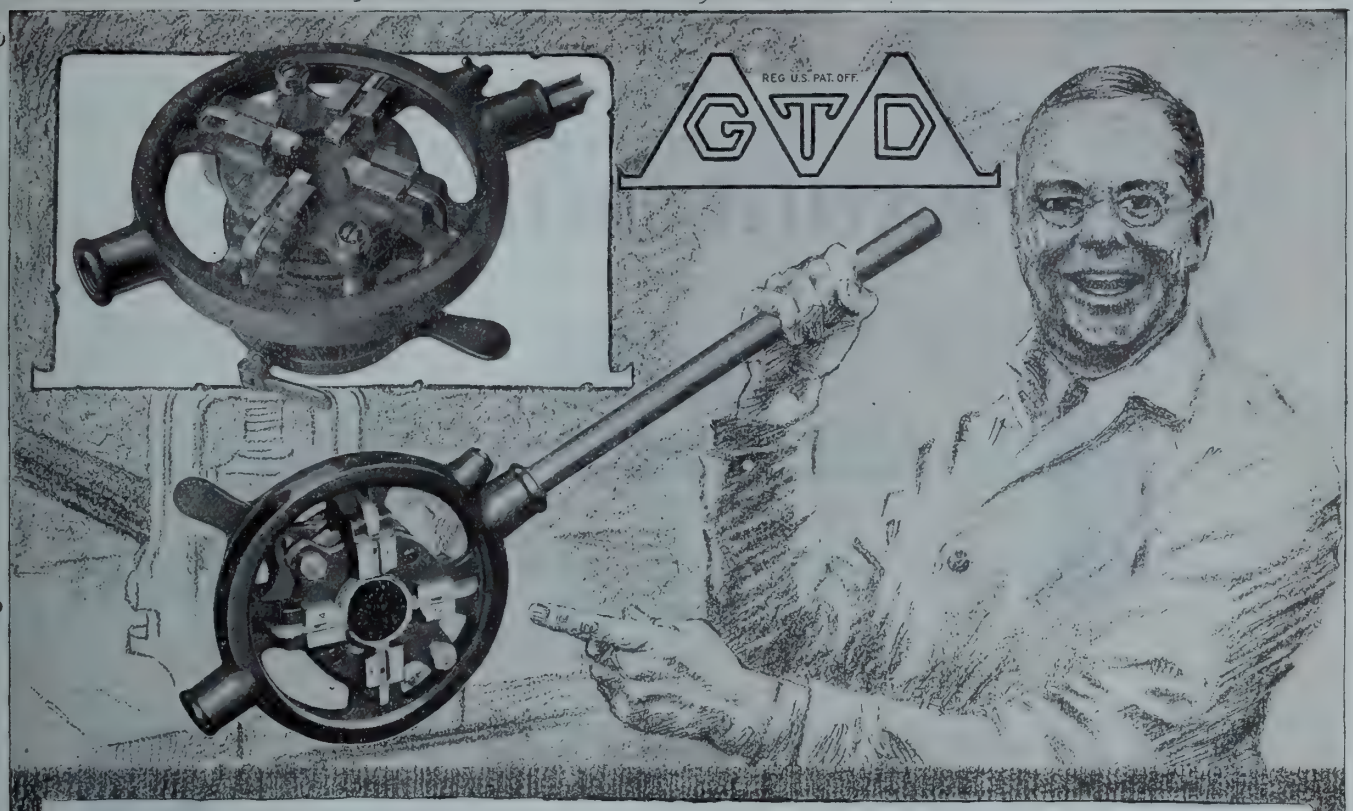
Hamilton Store:
20-28 Jackson Street West

Montreal:
358 Beaver Hall Square

Calgary:
325 Eighth Avenue West

Vancouver:
847 Beatty Street

"MADE IN CANADA"



"It Works So Easy"

Bill is demonstrating—and Bill doesn't make a practice of showing off tools—but he is so enthusiastic about the good qualities of the

Greenfield Ratchet Receding Pipe Threader

that he just can't help himself.

Easy cutting—ratchet action
Direct pull—no twisting strain
No unwinding on the pipe or off

10 Good Reasons

1 Quick Releasing
2 Quick Resetting
3 Adjustable Chuck
4 Replaceable Lead Screw
5 Replaceable Lead Nut
6 Chip Proof
7 Adjustable Chuck
8 Frictionless
9 Cuts Close Nipples
10 No Stripping

Cuts from one to two-inches

TRY THE TRIO

For smaller sizes Bill swears by the Trio Die Stock. 3 dies in one stock ready for use—no lost dies. Saves time and temper. Dies reversible—bushings removable.

"WELLS" PIPE WRENCHES

Dropped forged handle and jaws—holds like an electric magnet when the power is on—releases as quickly when the pull is off—strongest by actual test.

WELLS BROS. Company of Canada Ltd. Galt, Ontario

Little Giant

Canadian Plant of the Greenfield Tap & Die Corp

World's Largest Manufacturers of Screw Cutting Tools.

COUPON

S.E.C. 802

Wells Bros. Company of Canada, Ltd.
Please send me your No. 42 Pipe Tool Catalog describing "The Complete Line" of Pipe Tools. I am especially interested in Threading Tools [] Wrenches []

Name .....

Company .....

Address .....

WHEN YOU BUY

RANGE BOILERS

SPECIFY

Electric Weld

and secure the best the industry affords. They are carefully built and rigidly tested for your protection.

NO RIVETS—NO LEAKS

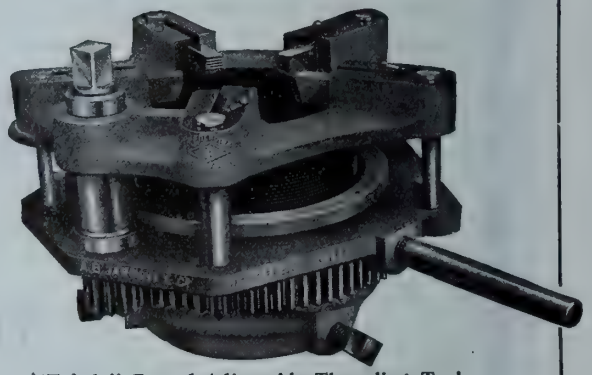
The Electric Weld Principle

CANADIAN JOHN WOOD MFG. CO., LIMITED

Grand Trunk Railway and Hillingdon Ave.

TORONTO ONTARIO

JARDINE and TOLEDO PIPE THREADING TOOLS



"Toledo" Geared Adjustable Threading Tool. No. 2½. Capacity 2½ to 6 in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo have no cams or jim cracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

SEND FOR CATALOGUE

A. B. JARDINE & COMPANY, Ltd., HESPELER, ONT.

Sole makers of "Jardine" Pipe-Threading Tools.
Sole licensees to manufacture and sell Toledo Pipe-Threading Tools in Canada.
Agents, Winnipeg and West—Stanley Brock, Ltd., Winnipeg, Man.
Brockville and East—J. R. Devereux, 358 Beaver Hall Square, Montreal.
Belleville and West—W. H. Cunningham & Co., 183 Church St., Toronto, Ont.

THE CANADIAN SOCIETY OF DOMESTIC SANITARY AND HEATING ENGINEERS

President
FRANK R. MAXWELL
Toronto

Vice President
HARRY MAHONEY
Guelph

Secretary-Treasurer
GARRETT F. FRANKLAND
Toronto

Plumbing and Heating Operators in the Province of Ontario

are invited to attend the

Ninth Annual Meeting

of the

Ontario Society of Domestic Sanitary and Heating Engineers

to be held in

TORONTO

on

Thursday, Friday, Saturday, April 8, 9, 10, 1920

in the

Canadian Foresters' Building, 22 College Street

ONE ITEM OF THE PROGRAMME WORTH A TRIP ACROSS THE CONTINENT

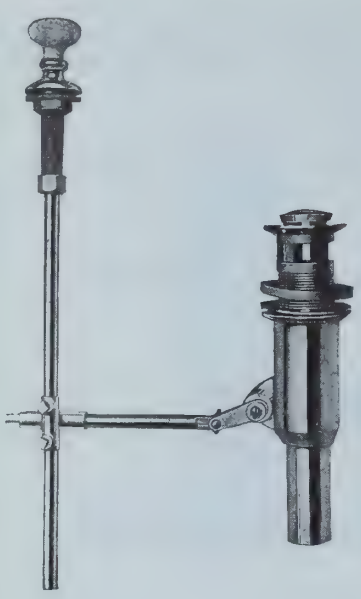
The Directors made final arrangements with W. J. Woolley, Manager of the Trade Extension Bureau of the United States to address the members present at this convention.

Mr. Woolley is without doubt one of the greatest authorities on Salesmanship and Business Management in connection with the Sanitary and Heating Business on this continent.

ALL FOR ONE
and
ONE FOR ALL

Address all correspondence to the Secretary
GARRETT F. FRANKLAND
Secretary-Treasurer
Room 303, 22 College Street
Toronto, Ontario

Yours for Co-operation,
FRANK R. MAXWELL,
President



ALLINGHAM POP-UP WASTE

DESCRIPTION

Allingham Pop Up Waste (Patented), Nickel-Plated, with China Waste Knob, indirect action (raising knob closes plug, lowering knob opens plug).

MEASUREMENTS

Diameter of flange under waste knob 1¾ inches. Diameter of flange inside hole 2⅛ inches. Diameter of flange below bowl 2⅜ inches. Outside diameter of outlet tube 1¼ inches.

The Allingham Waste is sanitary. The Waste Plug can be removed and cleaned without touching other parts. It is simple and mechanically correct. It is easily adjusted for friction or lift rod. It is reversible and can be easily changed from indirect to direct action if desired.

The Wallaceburg Brass & Iron Manufacturing Co., Limited

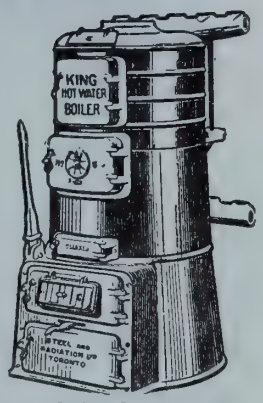
WALLACEBURG, ONT.

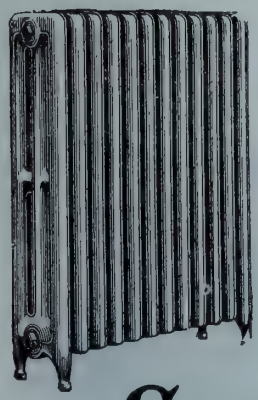
TORONTO	WINNIPEG	MONTREAL
10 Wellington St. E. Phone: Main 2355	Galt Building Phone: Garry 3389	358 Beaver Hall Sq. Phone: Main 7513
Mr. L. N. Vanstone	Moncrieff & Endress, Ltd.	J. R. Devereux & Co.

Advertising in Sanitary Engineer is economical, because the advertiser reaches only a class of business men directly interested in his product. The readers of Sanitary Engineer are big buyers because they buy for business as well as for private consumption.

A Permanent, Satisfactory Heating System

King Boilers and Imperial Radiators form an ideal heating system. The plant you install will please your customer if you give him a King Boiler with Imperial Radiators.





KING HOT WATER BOILERS AND IMPERIAL RADIATORS

The perfect results obtained by this combination have never failed to give absolute satisfaction. The extremely low fuel consumption of the King Boiler will instantly win favor. Every King Heating System you install will be a "salesman" for you.

STEEL AND RADIATION, LIMITED

Manufacturers of Hot Water *and* Steam Boilers *and* Radiators; Fenestra Steel Sash *and* Concrete Reinforcing

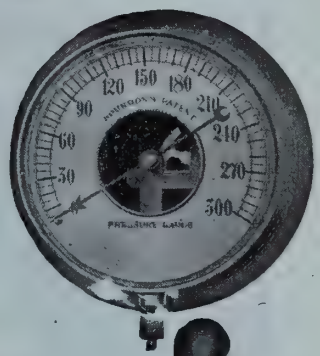
Head Office: Fraser Ave., Toronto **Sales Offices: Montreal, Toronto, Quebec.**

A Complete Stock of all Lines is Carried at Our Montreal Warehouse
Western Agents: The J. H. Ashdown Hardware Co., Ltd., Winnipeg

FIVE WORKS---OVER 3,000 EMPLOYEES

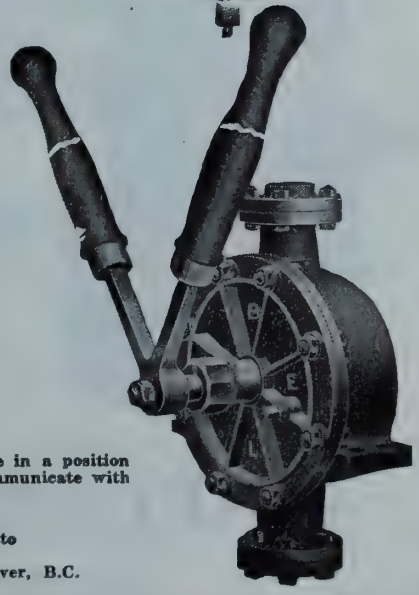
UNITED BRASSFOUNDERS AND ENGINEERS, LIMITED

EMPRESS FOUNDRY, CORNBROOK, MANCHESTER, ENG.



Specialists in the manufacture of

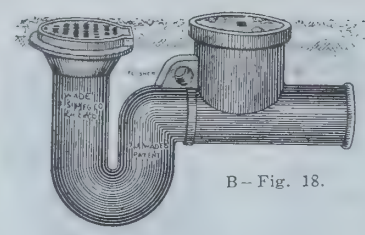
GUNMETAL and BRASS VALVES and COCKS.
STEAM, WATER and COMPRESSED AIR FITTINGS GENERALLY.
CAST IRON STOP and SLUICE VALVES.
SEMI-ROTARY PUMPS.
EXTRUDED BRASS and BRONZE BARS.
BRASS BOLTS and NUTS, STUDS and GENERAL TURNED WORK FROM THE BAR.
CAST AND MALLEABLE IRON COCKS and PIPE FITTINGS.
PRESSURE and VACUUM GAUGES.
INJECTORS and GENERAL JET APPLIANCES.
ENGINE GOVERNORS (Pickering, Proell, and Other Types).
SPRAYING MACHINES, for Insecticides and Lime-washing.
COPPERSMITHS' WORK.
"STELLA" BRAND ALLOYS: MANGANESE COPPER, SILICON COPPER, FERRO ZINC, PHOSPHOR COPPER and TIN, etc.



"UBEL" SERVICE

If you are interested in any or all of the lines mentioned, and are in a position to take a hand in the energetic distribution of the same, please communicate with us NOW to our Head Office, at above address.

Representatives for Canada (East of Alberta)
W. H. CUNNINGHAM & CO., 183 Church St., Toronto
For British Columbia and Alberta
W. MASON ROOKE, M.I.M.E., 613 Dominion Bldg., Vancouver, B.C.



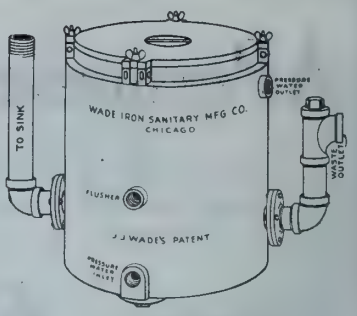
B—Fig. 18.

Wade Accessible Clean-out Drain Flushing Cesspool Back Water Gate Trap—Valve Combination.

Plan on Installing WADE Up to date FITTINGS in 1920

WADE Back Water Gate Valves and House Drainage, Sewer Flushing Fittings embody the latest improvements in design and construction.

They are approved by sanitary engineers and comply with health ordinances.



B—Fig. 27.
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

Wade Iron Sanitary Manufacturing Co. 551 W. Fulton St, CHICAGO

B—Fig. 126.
Wade accessible flushing cleanout floor wash and backwater valve combination.

B—Fig. 13.

Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.

Send for Catalogue

B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?

Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE: 136 SIMCOE ST., TORONTO

TRADE B.O.T. MARK

GOOD-BYE—

CANADIAN BRASS GALT ONT

To the unsanitary, unclean, germ-collecting wood strip seat, and let it remain an error of the past. This date we announce to the trade and public in general our decision not to offer this fixture for sale, in fact it is off the market. Our action is supported by Health Boards and physicians throughout the Dominion and we know the Sanitary Engineer is with us in the move, in fact, scores have asked us to eliminate this construction.

A Worthy Substitute

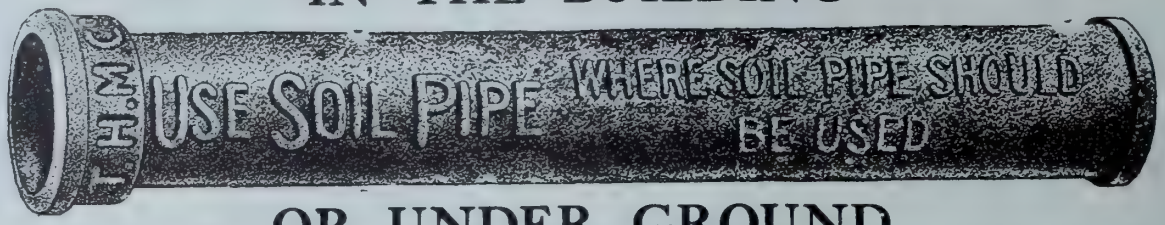
No. 201 Round Seat and Cover, full 1¼" stock in either golden oak or imitation mahogany, fitted with heavy Bar Post Hinges, N.P., having sufficient clearance between the bar and top of bowl to allow cleansing with a rag. It looks better, is better, lasts longer, and above all is sanitary. Wood doweled front and back of the seat opening, straight grained and will not split. Same features apply to Horse Shoe and Blanco Seats.

Yours for efficiency and service

CANADIAN BRASS COMPANY LIMITED

GALT TORONTO

IN THE BUILDING



OR UNDER GROUND

ASK YOUR JOBBER FOR T.H.M. CO. BRAND OF SOIL PIPE AND FITTINGS.

TORONTO HARDWARE MFG. COMPANY, - Toronto, Canada

WE MANUFACTURE A FULL LINE OF HIGH-GRADE RANGE BOILERS

Williams' Improved "Vulcan" Drop-Forged Chain Pipe Wrench

FEW tools are called upon to stand greater strain and harder wear than the pipe wrench. Because Williams' "Vulcan" Chain Pipe Wrenches have withstood every test during years of hard, continuous service under all conditions, they have earned a well-deserved reputation for dependability, and are favorably known the world over. They embody every good feature for which Williams' *Superior* quality stands.

Made in 8 sizes for ⅛ to 18 inch pipe. All Flat Link Chains are "proof-tested" on a standard tension machine and "certified." Every wrench is unconditionally guaranteed.

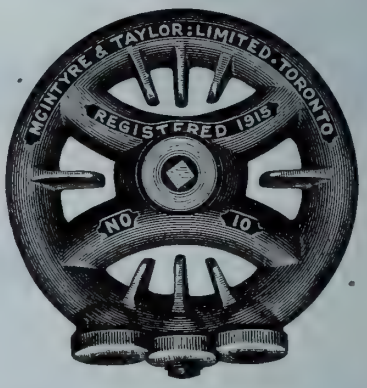
Ask for our descriptive Booklet of Pipe Tools

J. H. WILLIAMS & CO.
"The Wrench People"
77 Richards Street, Brooklyn, New York

The A. G. Low Co., Ltd., 77 Pacific Ave., Saskatoon, Sask.
Agts. for Manitoba, Saskatchewan, Alberta and British Columbia.

Extended Surface Special Tapping

M. & T. COILS



are specially designed to heat water with less fuel. They are not merely cored castings; note the extended heating surface and its capacity for heat absorption; examine the special tappings. M. & T. are the most efficient coils obtainable—the kind you want.

McIntyre & Taylor Limited

MONTREAL	TORONTO	WINNIPEG
55 St. Francis-Xavier St.	501-3 Queen St. W.	156 Lombard St.

SE-MENT-OL
Guaranteed to Repair Leaks in Boilers and Heating Systems
Qts.-$4.00 Gal. $14.00
THE NORTHWESTERN CHEMICAL CO.
Marietta, Ohio and Montreal, Canada

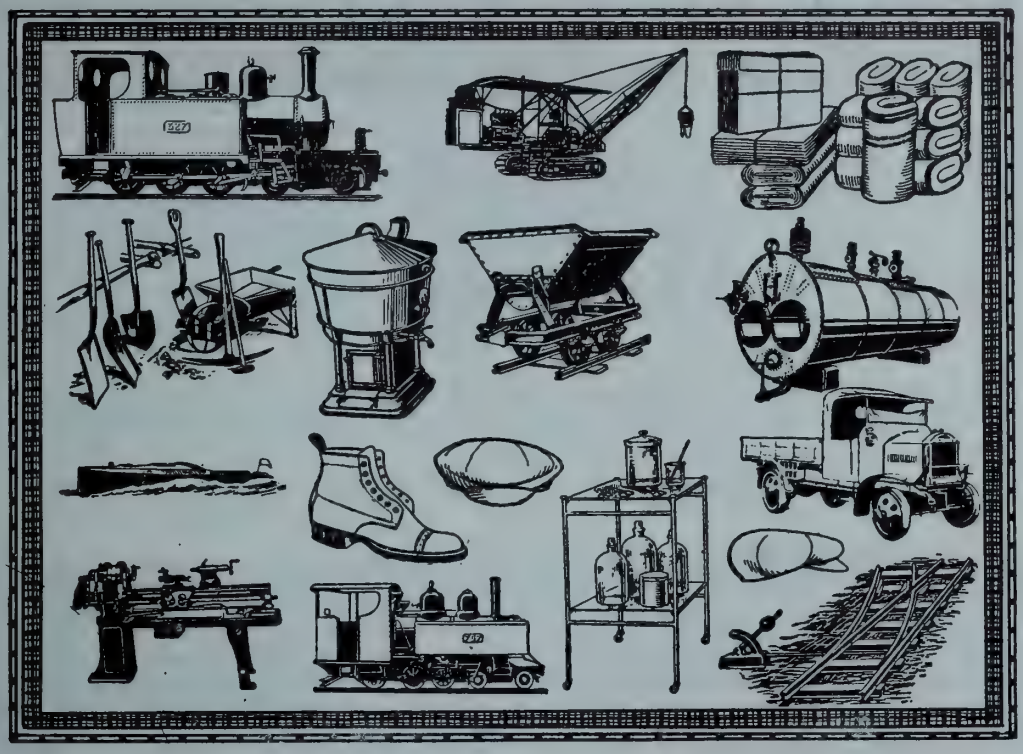
Mention
SANITARY ENGINEER
When Writing to Advertisers

Have You Taken Down Your Sign?

A prominent merchant who has made a great success of all branches of his business has said that withdrawing advertising from a good trade paper is like taking down your sign. Advertising to the trade you serve is business insurance, but premiums must be kept up or the policy will lapse.

There never was a time when the trade was keener for business information. That is why the advertising pages of the Sanitary Engineer are being followed so closely at the present time.

MINISTRY of G R MUNITIONS



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Aircraft
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Motor Boats, etc., etc.
Boots and Leather Equipment

Buyers should instruct their representatives in the United Kingdom to communicate with D. B. 8, Canadian Export Department, Ministry of Munitions, Whitehall Place, S.W.

Cable address: "DISPEXPORT, MUNORGIZE, LONDON."

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XIV. TORONTO, MARCH 15, 1920 No. 6

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The MacLean Publishing Company, Ltd.

JOHN BAYNE MACLEAN, *President.* H. T. HUNTER, *Vice-President.*
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Publishers of Sanitary Engineer, Hardware and Metal, The Financial Post, MacLean's Magazine, Farmers' Magazine, Canadian Grocer, Dry Goods Review, Men's Wear Review, Printer and Publisher, Bookseller and Stationer, Canadian Machinery and Manufacturing News, Power House, Canadian Foundryman, Marine Engineering of Canada, Canadian Motor, Tractor and Implement Trade Journal.

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Published on the First and Fifteenth of Each Month

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GEO. D. DAVIS, Manager.

CHIEF OFFICES:

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UNITED STATES—New York, A. R. Lowe, Room 620, 111 Broadway, Telephone Rector 3971; Boston, C. L. Morton, Room 734, Old South Building, Telephone Main 1024; H. A. Maguire, Room 1402, Lytton Bldg., 14 E. Jackson Street, Chicago, Phone Harrison 9133.

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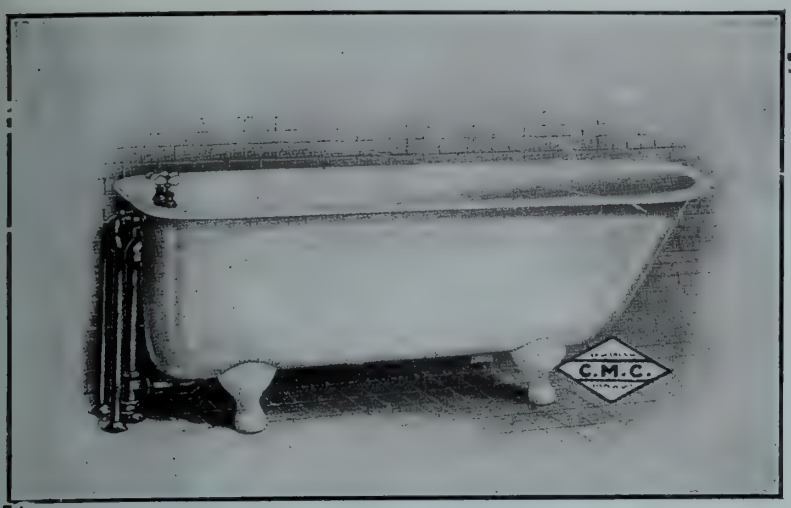

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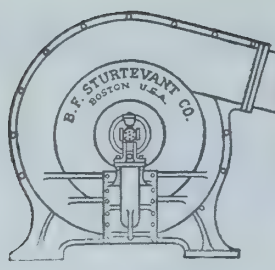

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REG. U.S. PAT. OFF.

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YOU find contractors placing orders for equipment many times simply as a result of what they think their profits are going to be.

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Manufacturer's price to me	So much
My price to the purchaser	So much
My profit	So much

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Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO, MARCH 15, 1920 No. 6

Board of Commerce Specifies Lines

List of Articles on Which Information is Required — Information Must be in by March 31st

The Board of Commerce order covers approximately all lines which are specified in the list accompanying this article. Returns are to be made by March 31, and the order affects wholesalers, manufacturers and distributors of all kind, as well as the Retail trade.

OWING to uncertainty in trade circles as to the lines included in the Board of Commerce order respecting building materials, a specific list of materials has been enumerated in a new order issued by the Board. SANITARY ENGINEER is, therefore, printing both orders in full, as follows:

Order No. 37
Commodity: Building Materials
Location: Canada

Present:
H. A. Robson, K.C., Chief Commissioner.
W. F. O'Connor, K.C.,
James Murdock,
Commissioners

It is hereby declared that building materials of all kinds ordinarily or necessarily used in the construction or sanitary completion of houses for homes, including plumbing fixtures and building hardware, are necessaries of life under part two of the Combines and Fair Prices Act, 1919. This special regulation is made pursuant to section 16 of said Act.

It is further ordered that, prior to the 31st day of March, 1920, all dealers within Canada in such building materials do deliver to the Secretary of the Board of Commerce of Canada, at Ottawa, a statement showing the cost price to them of each article or class of building material being sold or offered for sale, with their selling price thereof, to a contractor or other individual, for use in the building of houses, and stating the dates as of which such cost and selling price is reported.

And it is declared that any dealer or dealers holding or offering for sale within Canada such building materials will hereafter be deemed to have committed an offence under The Combines and Fair Prices Act, 1919, if an unfair profit is made by them or him in the sale of such building materials.

(Sgd.) H. A. Robson,
Chief Commissioner.
(Sgd.) W. F. O'Connor,
(Sgd.) James Murdock,
Commissioners.

Order No. 62
Commodity: Building Materials
Location: General

Present:
W. F. O'Connor, K.C.,
James Murdock,
Commissioners.

It appearing from certain articles in trade papers and from correspondence with this Board:

1. That certain vendors of building materials infer that because no personal service was made upon them of this Board's Order No. 37, requiring, among other things, transmission to this Board of their cost and selling prices of such materials, compliance with such order is not required by law;

2. That the information so required by this Board is claimed to be insufficient to serve any practical purpose;

3. That it is contended that compliance with such order is burdensome and unnecessary, because no unfair profits are being made by such vendors;

4. That certain of such vendors have decided not to comply with such order;

5. That many are undecided as to what commodities such order extends to and includes;

This Board now observes and declares:

1. That such order, having been published for three weeks in the "Canada Gazette," has, by section 39 of the Board of Commerce Act, the same effect as if it formed part of that Act, and that non-compliance with the order will be a breach of the Act.

2. That the object of the order is to secure sufficient information, preliminarily, to enable the Board to intelligently proceed with further and more extensive inquiries.

3. That compliance with law is always burdensome. The Board's proceedings are necessary. It is charged by Parliament with the obligation of making such inquiries in the public interest. Its inquiries do not imply guilt on the part of any, but its orders must be strictly obeyed. Let those to whom its inquiries are addressed make full and fair disclosures, and where profits are but fair it will be this Board's duty to so declare. If profits are found to be unfair, this Board must perform its duty in another way. In either event, all prejudicially concerned will have ample opportunity to explain or defend.

4. That such persons as disregard this Board's orders will suffer the appropriate statutory penalties.

5. That for the better information of all concerned, it is declared that said Order No. 37 extends to, applies to, and includes, all producers and vendors, whether manufacturers, wholesalers, jobbers, retailers or otherwise, and the following commodities:

Foundations, Walls, etc.—
- Bricks, clay burned.
- Bricks, sand, lime.
- Bricks, special.
- Cement or concrete blocks or slabs.
- Cement, Portland.
- Flue linings for chimney and chimney tops.
- Lime.
- Sand.
- Stone, broken, and gravel.
- Stone, building.

Plaster—
- Laths, wood or metal.
- Bishopric board.
- Beaver board.
- Other plaster boards.
- Plaster, asbestic.
- Plaster, hard.
- Plaster of Paris.
- Magnesia flooring.

Lumber, Rough—
- 4-in. by 2-in. pine and spruce studding.
- 3-in. planks, pine and spruce, 12 to 16 ft. lengths, quality 1, 2, 3.
- 2-in. planks, pine and spruce, 12 to 16 ft. lengths, quality 1, 2, 3.
- 1¼-in. boards, pine or spruce, 12 to 16

ft., quality 1, 2, 3.
1-in. boards, pine or spruce, 12 to 16 ft., quality 1, 2, 3.

Lumber Manufactured—
Clapboards, pine, quality 1 and 2.
Flooring boards, best medium pine.
Flooring boards, best medium spruce.
Flooring boards, 2¾ by 13-16, hardwood, No. 2.
Skirting board, 6-in.
Door trimmings, 4-in.
Treads for stairs.
Risers for stairs.
Stringers for stairs.
Balusters.
Newels.
Rail.
Door frames.
Window frames (standard sizes).
Doors (standard sizes).
Sash (standard sizes).

Glass and Paint—
Glass.
Paint, white lead and zinc white.
Putty.
Varnishes.
Floor finishes.
Waterproofers.
Hardeners.

Roofing—
Gravel roofing.
Ready roofing, 3-ply.
Shingles—cedar, pine, spruce.
Shingles, asbestic.
Shingles, asphaltum.
Shingles, steel, galvanized.
Asphaltum.

Plumbing—
Bath.
Bathroom fixtures.
Kitchen sinks.
Lead flashing, also steel cornices.
Pipes, cast-iron.
Pipes, lead.
Pipes, steel galvanized and plain.
Pipes, sewer.
Wash basin.
W. C.
Water tank for W. C.
Taps and valves.

Kitchen Necessaries for Building in—
Cooking stove.
Stove pipes.
Hot water boiler.
Refrigerator.
Kitchen cabinet.

Hardware and Sundries—
Nails.
Door hinges.
Door locks and handles.
Door bolts.
Clothes hooks.
Electric wiring and fixtures.
Tar paper, single ply.
Building paper.
Register for heat.
Heating apparatus of all sorts.
Steel reinforcements, all sorts.
Steel beams.
Fire protection apparatus.
Contractors' plant.

W. F. O'CONNOR,
Acting Chief Commissioner.
JAMES MURDOCK,
Commissioner.

Has Your Insurance Increased With the Value of Your Stock?

Many Merchants May Have Forgotten That Their Stock Has Increased in Value 100 Per Cent., While Their Insurance on Same Has Stood Still—Delay May be Fatal

IF A fire should break out in your store to-day and your stock were ruined either by flames or water, how would you be fixed for insurance? No doubt you have insurance placed on your stock; perhaps you have carried the same insurance for years and feel snug with contentment, so far as the possibility of fire with its ruinous consequences are concerned. Premiums have been paid promptly on the $5,000, $10,000, or $20,000, or more, worth of insurance that you have been carrying; the rest you leave in the hands of a merciful Providence.

But—

Providence, however, usually helps those who help themselves. Have you overlooked the fact that, during the last four or five years, your stock has increased in value from 50 to 100 per cent.? Did you ever sit down to figure out what it would cost to replace the stock you are carrying to-day, and then to compare that figure with the amount of insurance you are carrying on that stock? It might be time very well spent and it might, in addition, bring you very sharply to time with regard to insurance. Many merchants may have forgotten that their protection against fire has stood still while the value of their stock has been going up by leaps and bounds.

Stock Protection as Important as Self Protection

It is just as important to the welfare of your business that your stock be protected as that you, yourself, should be protected both by life-insurance and a salary from your business. Many of the leading financial men in big firms, or the heads of big concerns are increasing their business life assurance to protect their business against the possibility of shock should they suddenly die. Such a shock is inevitable when the directing head of a great institution is suddenly taken off. Every merchant should give his own business the same protection. All good merchants do. Every merchant knows that his stock to-day is almost twice as valuable as it was before the war and that it would cost him more than much to replace it. You always figure, of course, the fire will never come nearer you than next door. But it may. How are you fixed for such an eventuality? This is a reminder to the man who has not attended to insurance matters.

EXCHANGE RATE FOR DUTY PURPOSES ON CANADIAN GOODS IMPORTED INTO ENGLAND

Mr. Harrison Watson, Canadian Government Trade Commissioner in London, was asked to ascertain how the British Customs authorities fixed the rate of exchange in the valuation of dutiable goods invoiced in Canadian currency. A cablegram from Mr. Harrison Watson says:

"Customs converts at the rate of Canadian exchange current the day the importing vessel reports at the Customs House."

GOOD AND BAD COMBINES

The attitude of the Board of Commerce that there are good and bad combines, will appeal to the business community; they can be made to serve the public or gouge the public. The difficulty is to discover which is which, and the public is inclined to consider all guilty that cannot be shown to be innocent.

ONTARIO INCORPORATIONS

Adam Clark, Limited, head office, Hamilton, capitalized $250,000, to manufacture, and wholesale and retail furnaces, radiators, plumbing and heating equipment, etc.

The Hubbell Mfg. Co., Ltd., capitalized $40,000, head office, Toronto, to manufacture and deal in electric heating and lighting devices, etc.

BIG BUYERS

The purchasing power of the rural population is much greater than it was a decade ago, and the merchants in rural communities have much more competition than they had ten years ago. The mail order houses, the parcel post, the interurban trolley, and the automobile have all been factors in turning the trade of the rural dweller citywards. Conditions are changing, and methods of transacting business are changing. The small town merchant who wants to succeed to-day, must have more than a stock of goods to sell; he must have some attraction that will distinguish his store from the ordinary every-day store. He must also sell service along with his merchandise.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

Purification Percentage

Whilst the clarified effluent from a septic tank produces about 40 to 45 per cent. purification, the action caused through the liquification renders the tank effluent very much stronger than the effluent from other tank systems, so that either filtration or distribution on natural suitable soils is essential for final purification of the sewage before passing same into any stream or watercourse, which will be taken up fully in the following chapter of land filtration, but it reminds the reader that sewage after passing through septic tanks is far from pure and is dangerous to public health and not fit to be discharged into any small stream, sluggish watercourse or stagnant pool, as secondary decomposition is sure to take place, which will in a short time give off foul gases and smells and become a disagreeable and dangerous nuisance to the surrounding neighborhood.

Reinforced Concrete

It is usual, in small septic tanks, to cover same with a reinforced concrete cover, thus excluding all air and winds which are liable to disturb the formation of the scum and sludge and retard bacterial life. Then again, same can be covered over with earth and grass and practically be hidden from view with the exception of the inspection manhole cover used for cleansing purposes.

In small tanks it is always advisable to form a substantial roof which not only prevents the emanations of odious gases but protects the sewage from sun and disturbance of wind and rain and rapid evaporation of the liquid surface, which proves very obnoxious to houses in too close a proximity to an open tank, so that it is practically essential under such circumstances to provide an airtight roof covering which gives better working results.

In Cold Climates

In very cold climates it is always advisable to keep the sewer pipe from the house below the action of the frost, but there is very little danger of freezing taking place in the septic tank as the discharges from the house are nearly always warm, which together with the heat given off by the bacterial action, prevents actual freezing taking place, but the activity of bacterial life becomes greatest at a temperature varying from 70 degrees to 100 deg. Fahrenheit, so wherever possible the tanks should be buried under the ground as far as possible and covered with earth as a protection.

The Grade

The main pipe discharging from the house should have, if possible, a grade of not less than 10 times the diameter of the pipe and should always be carried well below the water level of the tank so that same can discharge without disturbing the scum formed on the water surface of the tanks as well as having the tendency of encouraging the descendancy of the sewage to be treated, producing better settlement of solids and whilst the scum acts as a roof over the septic tank, it is always liable to disturbance by the action of the weather.

Emptying and Cleaning

Provision should always be made for emptying and cleaning out the tank from time to time and an easy access provided so that all parts, especially the automatic flushing syphon, can be easily got at for periodical inspection at any time, as for successful results, grease from the kitchen sink and waste should never be allowed to enter the septic tank unless previously intercepted by some form of grease trap located on the branch, as the grease is destructive and in time clogs up and retards the bacterial action of the tank.

Has Little Odor

Fresh sewage has very little odor, but if allowed to decompose gases are given off during putrefaction from which all the complaints and nuisance arises. Sewage quickly decomposes if allowed to remain stagnant and provision should be always made in tanks for carrying off these harmful gases by efficient ventilation.

The action in a septic tank can be classified under two headings, namely, mechanical and bacterial. The former consists of the settlement of the heavier particles to the bottom, the lighter and smaller particles in the solution rising to the surface and forming the scum which shuts off the air and light and protects the active anaerobic bacteria. Whilst the heavier particles are lying stagnant at the bottom of the septic tank, large numbers of active anaerobic bacteria come into existence and attack and feed upon the deposited sludge, thus reducing the volume considerably and disintegrating and breaking up the particles of organic matter into very fine particles, which float on the surface of the liquid in the tank and partly help to form the thick scum. The remainder remains in solution in the t nk effluent and in time clogs the filtration area unless the tank effluent is passed through fine screens.

The best design of septic tank to install is the two chamber, as this type of tank produces the best results and can be constructed on a small, level piece of ground. The first chamber receives the sewage and acts as the liquefying chamber and the other serves as a collecting chamber where an automatic syphon is installed which greatly reduces the owner's attention and supervision as well as preventing the outlet pipes being laid too near the ground surface.

Sometimes, to save cost, the automatic syphon can be dispensed with and a small hand plug inserted in the second chamber (as shown in Fig. 6), which is released on the contents of the tank reaching a certain height. This can be operated by means of a float or by hand from a chain, but whilst the initial outlay is less, the time and attention required to operate the latter method more than counteracts the extra cost of the syphon, which proves in time o be money well spent.

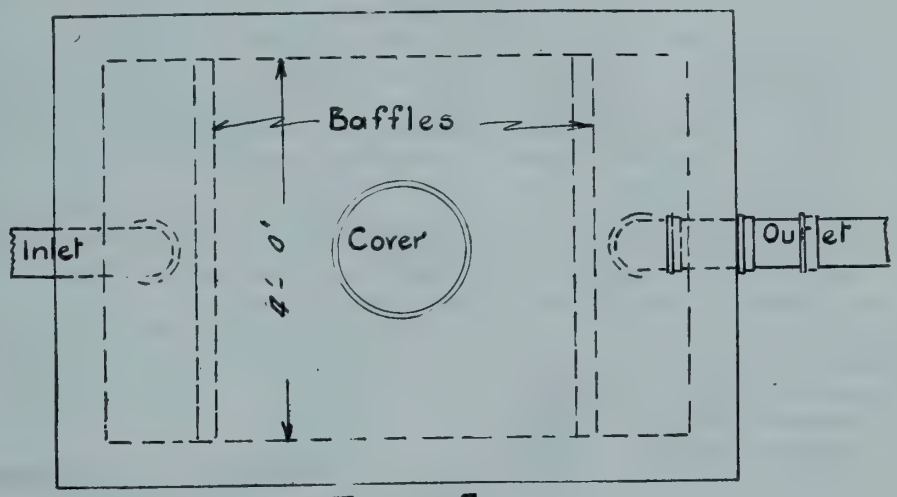


FIG 4.

A well-designed two-storey septic tank should not require cleaning out more than once a year. as for best results the scum formed on the surface of the liquid should not be disturbed more often than necessary, as the working results of the tank depend a great deal upon the scum so formed, and when the scum is once disturbed it takes considerable time to reform.

The sludge can be drawn off by a hand valve placed in the centre of each chamber connected with pipes laid at a grade of not

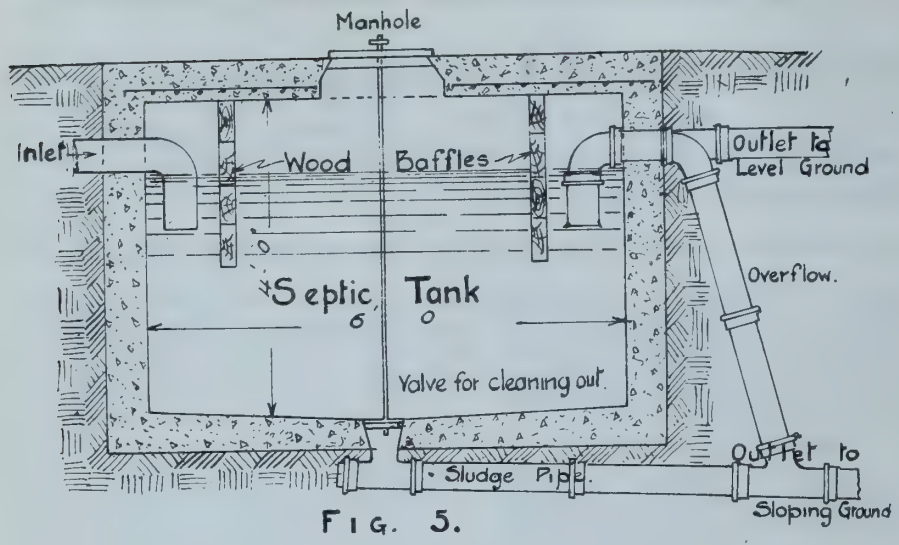


FIG. 5.

less than 1 in 30, which discharge into small sludge drying beds where the sludge is evenly spread over the whole area and allowed to dry until spadable by the sun; it is then removed, and dug into the land under cultivation as manure.

If the levels will not permit of the adoption of sludge gravitation pipes, the emptying process is best performed by a small pump, the discharge being run direct onto the land and ploughed or dug in as manure.

The capacity and depth of the automatic syphon chamber varies in different schemes and depends altogether upon local conditions as regards the nature of the soil of the filtration area.

The usual storage capacity varies from 8 to 12 hours. The lighter the soil the less storage capacity required, so that in a heavy loam the chamber must be made larger and deeper in order to give more time between each discharge, as heavy soil requires greater time to purify the sewage and longer aeration between each discharge. The lighter the soil the more frequent the discharge may be, which allows the chamber and syphon being constructed of smaller capacity, thus reducing the first cost of the installation.

Septic tanks should be carefully designed, otherwise they simply act as nothing more than a receiving tank or cesspool and produce bad results, which retards their adoption through being constructed by persons ignorant of the first principles of the requirements and working of a well-designed septic tank.

CHAPTER III

Small Septic Tank Installations

The actual design of a septic tank depends upon local conditions and levels of the surrounding land and can be constructed as either single or double chamber, but infinitely better results are obtained from the double chamber as previously explained. Still the single-storey tank can be constructed very much cheaper from the initial first cost standpoint.

Figures 4 and 5 show a plan and section of a modern single chamber tank designed for a small family. The tank is of concrete construction with a self-supporting roof, which should be reinforced with 3-8 inch longitudinal and cross steel rods placed at 5-inch to 7-inch centres, according to the span, placed 1 1-2 inches from the lower edge of the concrete slab and the bars well wired at intersections.

The bottom of the tank should slope at a grade of not less than 1 in 50 toward a central cleaning outlet, which is fitted with a watertight hand plug valve which allows the tank being emptied from time to time, discharging in a sludge drain, which gravitates to a convenient sludge-drying area especially located so as not to become a nuisance. If sufficient fall cannot be obtained so that the liquid sludge will run by gravitation, the central cleaning-out valve should be eliminated and cleaning out must be accomplished by pumping or manual labor.

Under no circumstances must the sludge pipe be connected to the pipes supplying the filtration area as the sludge would clog up and ruin the pipes and land set aside for purification of the clarified tank effluent.

A cast iron inspection manhole should be centrally placed in the reinforced concrete cover for inspection purposes, and a method of operating the hand valve during cleansing operations.

The inlet and outlet pipes are carried well below the level of the surface of the liquid so as not to disturb the scum which collects on same, also wooden baffle boards should be placed as shown in Figs. 4 and 5, which protect the inlet and outlet pipes, and prevents the disturbance of the sludge which would be caused through the rate of sewage discharge (obtained from the grade of the house drains), and produces greater sedimentation.

These baffles should be placed in cast iron channels built in the concrete walls and so constructed in section in order that same can be raised or lowered to meet the varying working conditions.

This tank is constructed so that the discharge i practically always continuous; every discharge of new sewage when the tank is full forces the clarified effluent through the overflow pipe to the filtration area. This system of continuous small trickling discharge does not produce ideal distribution of the sewage over the filtration area—the area nearest the outlets treats the sewage continuously, whilst that farther away gets very littl sewage if any, and the former, through continuous work and lack of aeration, becomes sewage sick and loses its purification qualities—therefore for successful results some method mus be adopted of intermittently diverting the tank effluent, which always requires constant supervision, likewise the tank also requires a certain mount of attention, as in this form of tank automatic syphons cannot be successfully installed owing to the clogging which would take place in the bend and cap of the syphon and owing to the sludge deposit being in the same chamber.

This type of tank can be installed in either level or sloping ground by either discharging the tank effluent through the top pipe line or through the overflow into the pipe line at the bottom of the tank, as shown in Fig. 5.

A concrete baffle wall must be constructed above the level of the sludge deposit so as to prevent the solid matter being washed down the pipes into the filtration area, which would clog up and render, in time, this area useless for secondary purification.

Fig. 6 shows another form of single chamber septic tank. The inlet and outlet overflow and ventilator are similar to the present example, the only difference is being able to periodically feed the filtrating area with regular discharges, thus ensurion better distribution over the filters. This is

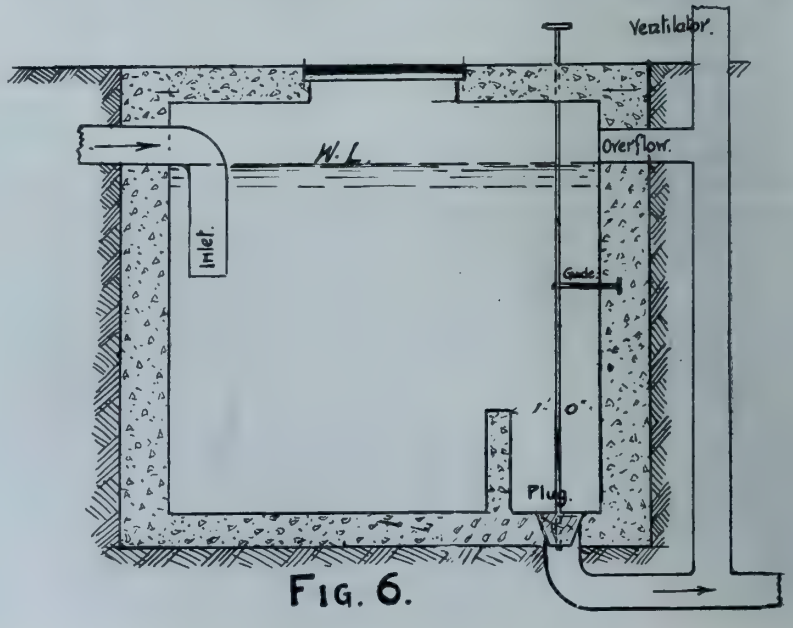


FIG. 6.

accomplished by means of a hand plug as shown in the illustration and requires lifting when the tank is full, which depends upon the size and capacity of the chamber and number of persons served. They are usually constructed to hold two days' flow, so it would mean the sewage would have to be liberated every other day, which is very inconvenient.

There are several well-known standard types of double compartment septic tanks which have been installed with good success throughout the American continent, and although the principles and design are calculated for one standard they have been modified to suit the various styles of profile of the land at the engineer's disposal, but in many cases it is far better for the engineer to design the works to suit the location he has at his disposal, embodying the general principles of the past experience of other similar installations.

It is a bad policy to have one stock pattern of septic tank and instal this without giving the thought and attention required for the proper installation of a successful working plant which will produce the best results. There is quite as much importance in designing a small plant as a large one. Whilst the following sketches and examples have been carefully selected and obtained from various tanks that have been constructed with good results, and cover as far as possible the various conditions most generally met with in designing small works, they should only be used as a basis for carrying out the general principles necessary for obtaining a first-class septic tank. Careful thought is essential and same can and should be modified to meet mostly any location selected suitable for the private disposal of sewage.

Thoughts on Life and Business

By B. C. Forbes.

THE fellow who isn't fired with enthusiasm is apt to be fired.

Excess is an arch enemy of success.

If top-notch effort yields you no happiness, there's something wrong either with you or your efforts. Sit down and do some analyzing.

After all, you've got to give full, fair value. Or you won't last.

Carelessness and failure are twins.

The most valuable "system" is a good nervous system.

Saving is Having.

If you have half an hour to spare, don't spend it with someone who hasn't.

Don't simply see how you can "put in the day." See how much you can put into the day.

Never contrive to make it easy for your concern to get along without you.

Make sure the prize you chase is worth the price.

If you cultivate your talents you'll always find an opportunity to use them.

When in a fix, sweating will get you farther than swearing.

Let mules do the kicking.

Honking your horn doesn't help so much as steering wisely.

Don't expect poor work now to lead to brilliant work hereafter.

You have no idea how big the other fellow's troubles are.

It's all right to aspire to control others, but have you begun with Number One?

Notice that two-thirds of "Promotion" consists of "Motion."

The wages of idleness is demotion.

There is no higher rank than that of worker. No title can ever make a loafer a nobleman.

There must be output before there can be income.

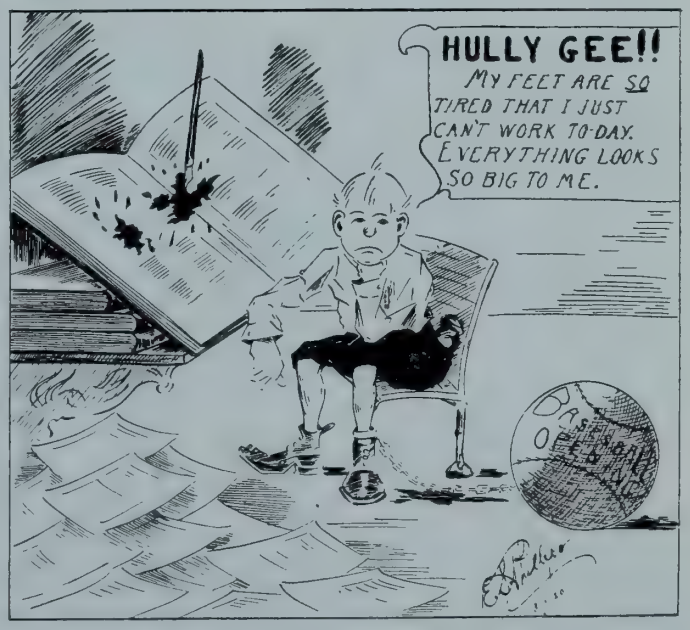
Defeat is often a spur to victory.

The best reward is sense of worthy achievement.

Good times for all can only be the product of good work by all.

—*From Forbes' Magazine.*

WINTER
SPRING'S
SUN
EPIDEMICS
TOO MANY WEEKS OF SLEET AND SNOW
SORROW AND REMORSE
THEY SURE DID HAVE THEIR NERVE TO STAY WITH US SO LONG, I'LL SAY!
-AND I HAD TO WORK AND KEEP THAT GUY GOING THE PACE HE DID
HOUSEWIFE



Trade Outlook Good for Years; Standardization Aids Output

R. E. Hattersley, Joint Managing Director of United Brass Founders and Engineers, Ltd., Outlines Conditions in Motherland—Hopes Wages Will Never Come Down to Pre-War Days—Better Conditions Amongst Workingmen Make for Better Production—Must Eventually Trade With Germans

THAT owing to standardization, production has taken the turn in the road and is now on the increase so far as their products are concerned, that there are four or five years of good trade in both the domestic and the foreign markets of the world, that prices are bound to remain high for some time to come, and that Germany cannot be crowded out of the markets of the world for an indefinite period, were views expressed to SANITARY ENGINEER by R. E. Hattersley, joint managing director of the United States Foundries, Ltd., with head offices at Manchester and factories at Ormskirk, Halifax, Birmingham, Woodchester and Manchester. Mr. Hattersley has just come to Toronto after a visit to New York, Chicago and Detroit, where he has gleaned valuable information regarding conditions in the republic and the outlook there. Mr. Hattersley spent several days with the company's Canadian representative, W. H. Cunningham, of W. H. Cunningham & Co., Church Street, Toronto. Labor conditions, he believes, are causing some thought across the borderline inasmuch as their ranks are being depleted by the return to their home-lands of many of the laboring foreigners. He speaks optimistically of conditions in the Old Land and expresses the belief that there are still years of plenty ahead for the manufacturers.

Mr. Hattersley, fresh from his visit to a number of the important American centres, said he believed manufacturers in the United States were worrying considerably over the question of emigration and immigration. His impression was that a shortage of labor was beginning to be felt because emigration was exceeding immigration. Considerable reliance was placed by the American manufacturer on foreign labor and he believed that in this respect the American manufacturer has previously stood in a better position, perhaps, than those in England, because the foreign laborer would do that class of work better than the Englishman born in his own country. There was a current of opinion, he said, which held that many of the foreigners were being driven from the United States on account of prohibition; but he believed that the best opinion there was that, since drink had been cut out, efficiency had been of a higher standard. Americans, he felt, were viewing with some apprehension the emigration of so many of their substantial farmers to Canada. The result of the foreign emigration from the United States was an increase in wages to laboring-men.

"Before the war," said Mr. Hattersley, "skilled workmen were getting forty to forty-five shillings and now many of them are getting from five to seven pounds, whether on day or piece work, and they are still asking for increases in their wages. This is largely on account of the increased cost of living. So far as production is concerned, there has been a slight improvement lately and the reason this improvement did not commence sooner was that men, from the executive heads to the workmen, were tired after the war. The average manufacturer has come to realize that there is no use in manufacturing a large variety in small quantities, but that it is better to manufacture a large quantity of fewer varieties and so they are going in for mass production. We could be turning out more under the old conditions than now, but in a few months we will be turning out vastly more than we ever could under the old conditions and old methods. If we are making one-half dozen articles instead of five or six hundred we give those five or six articles the proper attention and watch them go through the entire process. Our executive men are paying specific attention to these half-dozen lines rather than to a wide variety."

The fact that several manufacturers might be specializing on the same article was not regarded by Mr. Hattersley as a possible indication of overlapping or an immediate decrease in the cost of goods. "We estimate," he said, "that there are four or five years of good trade ahead on account of the shortage in both the domestic and the foreign market, and we are being asked just now to pay particular attention to export trade on account of the exchange rate." So far as Canada was concerned, Mr. Hattersley believed that British manufacturers were changing their attitude toward this country and every other country and were very anxious to keep up and to increase their export trade. He felt that Canadian business would be well looked after during the next four or five years, providing the tariff was not so high that it paid the British manufacturer to ship his goods to other countries in preference to Canada. There was, at present, a good deal of talk in England regarding the tariff and it was his impression that the majority of the people believed that the open market was still the best policy.

"I believe trade with the Germans has not started yet," stated Mr. Hattersley, "but the feeling is that the whole world will have to trade with Germany in the end. The latest reports we have are that German trade is yet very unsatisfactory because they cannot tell the price or give any date as to delivery. But I think you will find eventually that, suppose the Germans are offering an article for three shillings where other prices are five, Canadians will buy it, and that we will gradually work back to trading with the German people. We cannot keep Germany out of the markets of the world for years to come."

Prices Bound to be Higher

Despite the fact that the English goods used to be placed on the market at lower prices than the Canadian or the American makes, Mr. Hattersley pointed out that prices were now bound to be higher than formerly on account of the scarcity of the raw materials. He believes that higher prices will prevail for some time yet. It was his hope that wages would never go back to where they were before the war. "Workmen are getting more wages and are getting more out of their wages," he said, "and many of the better class are saving money, though they are also spending more. The higher wages are partially offset because of the higher cost of living but these costs must come down and we do not want wages to come down in proportion to the cost of living. We want the workmen to have better standards of living, believing that it will mean better production under such a scheme and under the scheme whereby manufacturers are specializing on production in co-operation with the workmen. One hears a good deal about labor unrest, a good deal more than is real. But the best manufacturers are not having labor troubles. So far as our men are concerned—and we have about 3,000 of them—they want to help us as much as

Continued on page 22

Mr. Wanless says that showing people exactly how an installation is going to look in their homes is one of the most effective methods of closing sales. Displays like that shown above are arranged frequently, while the showing of bathroom fixtures is permanent. This has greatly increased th e firm's business in fixtures.

Get the Stock—Then Let People Know It

Tendency for Farmers to Improve Homes—Rich Field in Rural Districts for Selling Sanitary Plumbing and Heating Goods — Also Selling Farm Lighting Equipment

Based on an Interview by C. E. PARSONS of SANITARY ENGINEER with Ed. Wanless, Manager of J. C. Wanless, Chatham, Ont.

J. C. WANLESS, Chatham, Ont., have secured some excellent business through advertising window and interior displays and also through personal solicitation. The above illustration shows how attractively the goods look when displayed in the Wanless store.

The firm backs up its advertising by seasonable window and store displays. The windows are dressed every week and the stock in the store is changed around continually and seasonable merchandise kept to the front.

"Our windows," said Mr. Wanless, "are, I believe, one of the very best advertising forces we have. They never stop working and our experience proves that the public generally is really interested in window shopping, especially the hundreds of farmers and their wives who are in the city continually on business."

A Rich Section

Just here it might be mentioned that although Chatham has a population of only 11,000, it is right in the heart of one of the very richest farming sections in the whole Dominion. Rich clay land stretches away on every side of the city for miles, and hundreds of thousands of dollars' worth of corn is grown and fed to countless hogs. Everyone knows the prices which have been ruling for hogs for years, and a fair estimate may be made of the wealth of Kent County. Add to this the rich tobacco fields south of Chatham and the mixed farming districts and the total is complete.

It is said that there are more automobiles owned among the farmers of Kent County than in any similar area in the Dominion.

Right After Trade

J. C. Wanless and Sons are right out after the trade in this rich territory. It might be thought that looking after the requirements of these people would be an easy matter, but when one stops to think that the rich, prosperous farmer of to-day, with his big car, and his sons and daughters attending the best schools, not only knows what he wants, but is ready to look elsewhere if he does not find it at home, the problem takes on a new aspect.

The firm aims to keep its store and its service absolutely up-to-date. "The Up-to-Date Hardware" is a feature at the bottom of every ad., and the company plans to make good.

An Important Development

As might be expected in a rich and progressive farming community of this kind, there is a big demand for electricity. Power lines and radial railways have been built and still the demand is for more and still more. This opens up opportunities for the sale of bulbs, irons and other equipment. It is necessary in selling these to meet the opposition from a Hydro shop. This opposition killed the business in the city itself for such lines as lighting fixtures, but J. C. Wanless and Sons are going after the trade in the country with both feet and are developing the special farm lighting plant business rapidly. This offers splendid opportunities for the sale of lighting fixtures and special equipment.

Improve Their Homes

"There is a noticeable tendency," said Mr. Wanless, "in the country districts towards improvement of the homes. The farmers are interested any and every time in anything that will make their

work easier, or that will make their homes more comfortable or more sanitary. Curiously enough, we find that in a great many cases it is the farmer's wife who is behind many of the moves which result in improvements being made. It may be a bathroom or a water pressure system, some electric device that will make her work easier or some other proposition, but the women are interested in them all. The farmers have the money and they are constantly planning to make things better for themselves. It is seldom a question with them of how much will it cost, but rather of what service will be got. It is usually easy to show them the years and years of every-day service they will secure from a bathroom, a water pressure system, or some other equipment. In selling bathroom equipment and other lines for use in the home, it is always a big help if we can show them just how the bath or other equipment will look when installed. We frequently install as many as sixty bathrooms in a season. Every installation is a good ad. for the firm, as other people in the neighborhood sooner or later want the same equipment, and we aim to make our work and our service speak for themselves.

Tell Them About It

One of the important things in connection with developing business in bathroom equipment, water pressure systems, and other home conveniences, is to let people know that there are such things and that you have them for sale. It is astonishing the hazy ideas the average person has about such things as pressure systems. They know that there are such things, but have no idea whatever about their cost or the simplicity of their action or the convenience they are in the home. It is only by getting them interested in these points and by actually demonstrating to them the lifetime of service such devices will render at a cost per day of a fraction of a cent that they see how much they are missing. Once they realize these points it is difficult to close the sale, especially if they happen to have had other devices installed previously which are giving satisfaction. There is a lot of good business to be had in this field and it is one which is developing every year."

New Water System For Chatham

Chatham, Ont.—The Chatham waterworks commission at a special meeting adopted a report of Major Adams, city engineer, in which he recommended a new rapid sand gravity filtration system as the solution to the local water problem. The proposed system will necessitate the scrapping of the old plant and building an entirely new system, with the intake pipe located several miles up stream, and estimated to cost $371,000. The city engineer was instructed to prepare plans and specifications to be approved by expert waterworks engineers.

T. J. Alexander, President Saskatchewan Association

Annual Business Convention Held at Saskatoon—Next Convention to be Held at Moose Jaw

T. J. ALEXANDER, Moose Jaw, Sask., was elected president of the Saskatchewan Sanitary and Heating Engineers at the second annual convention held in Saskatoon.

On strong representations of Mr. Alexander, supported by C. Clark, of the Moose Jaw Heating and Plumbing Co., and Tom P. Baylis, the other two representatives of the Moose Jaw plumbers, it was decided that the convention should be held in Moose Jaw, Sask., next year.

The meetings were held in the city council chamber and the program was a business one, for the most part, but, working on the theory that "all work and no play makes Pete a poor plumber," the engineers included a couple of social features. These took the form of a theatre party at the Empire and a banquet in the Baldwin hotel.

Such technically interesting papers were on the program:

"The relation of sub to general contracting," by W. Whiteford, of Regina.

"Business methods, pricing and collecting," by C. Greene, of Saskatoon.

"Construction of builders from the heating engineer's standpoint," J. Yates, of Brandon, Man.

"Contracts and credits," Neal Beaton, Saskatoon.

"Relation to the wholesalers," D. A. Ross, Saskatoon.

"Septic tanks," S. P. Paulin, Regina.

Board of Health Wants Houses Connected Sewers

Peterborough, Ont.—Considerable discussion arose at the Board of Health meeting on the question of earthen closets during the course of which it developed that there were at present in the city less than 1,500. They were condemned as unsanitary by the different members of the board and a resolution was moved by Mr. James Lynch and seconded by Mr. Mason that the Board of Health recommend to the City Council, in the interests of public health, that all houses should be connected up with the sewerage system, the costs of the same to be paid in instalments with the taxes if necessary. This resolution was unanimously carried.

Pt. Dalhousie Plans Waterworks

Port Dalhousie. — Preliminary steps are being taken to establish waterworks in Port Dalhousie. The sum required will be $120,000 and the Port water commission has asked the town council to issue debentures for this amount. A sewerage system will likewise be put in to cost $30,000 at the outset.

Asks Big Expenditure On New Waterworks

Toronto, Ont.—Works Commissioner R. C. Harris, of this city, intends to ask the city later in the year to authorize expenditure for a duplicate waterworks plant in the eastern part of the city. In 1912 the project came before the ratepayers, who voted $6,000,000 for it. Expenditures to be asked will double that amount, stated Mr. Harris yesterday.

TRADE OUTLOOK GOOD

Continued from page 20

they can and get back to normal conditions."

Mr. Hattersley stated that they were cutting out a number of the lines which they formerly manufactured and were standardizing both lines and methods and paying more attention to the lines which were in greatest demand, both in the domestic and the foreign market. "We are finding out the best selling lines for each country to which we export and we are trying to alter selling conditions to the conditions obtaining in those countries, and this includes the Canadian buyer. Whereas, formerly, a few men ran the whole institution, we are now departmentalizing the whole concern as to selling, manufacturing, etc."

The Exchange Rate

The impression was not given by Mr. Hattersley that British manufacturers were worrying greatly over the exchange rate. He believed that the chief worries in the United States to-day were due to immigration, emigration and exchange. Were the British manufacturers not so busy in other directions, they could export more goods and bring conditions more to normal. The exchange rate should right itself, however, because for the great mass of the people it would help to bring down the cost of living. So far as he was concerned, he did not want to see wages go down, but he did not feel that they would reach much higher levels according to present production; nor did he care how high wages did go so long as production was at such a cost as would enable them to compete successfully in other countries.

Mr. Hattersley is accompanied by Mr. Herbert T. Marsh, a director of the company, both of whom left Toronto for New York this week on the return trip to England.

Bathroom Fittings Good Selling Line

Interior Displays and Advertising Will Sell a Highly Profitable Line—Bathroom Fittings Make Attractive Displays

BATHROOM fixtures are always in demand and the dealer who keeps them where people can see them and who occasionally lets the public know through his advertisements that he has a good stock from which to choose, finds no trouble at all in keeping them moving.

This season, as a result of the large number of better class homes being erected, there has been an exceptional demand for bathroom equipment. Dealers state that they find people not only willing to pay a fair price for quality fittings, but demanding them. The dealer who is in a position to show the man who is building a new home an assortment of bathroom accessories that will make not only for beauty, but for service and comfort, can cash in on some good trade and one that carries a nice profit.

Those dealers who got busy and studied the building situation in their district and then stocked accordingly, have done well with bathroom equipment. Some of the larger firms have found it an excellent plan to arrange a model bathroom showing the fixtures in position. By taking home builders in and showing them exactly how the fittings would look when installed, they aroused an immediate desire for possession, and the only thing that remained was to make the selection

Other dealers in districts where the building conditions did not warrant carrying such an extensive stock rounded up a lot of trade by arranging store and window displays and using newspaper space.

Make a Fine Showing

The better the fittings the better the display. Dealers state that they show off as well at night as in the day time and that they find a large percentage of householders, aside from those who are building new homes, interested in the goods. They come and ask about the prices and frequently take home a towel bar, a soap dish or some other piece.

Besides the lines usually stocked, some dealers have found that it pays to push such goods as bath brushes, bathroom mirrors, sprays and even manicure sets.

Sell Themselves

Keeping these lines well displayed, the dealers say, is half the battle in keeping them moving. Once people know where they can get them they become regular buyers.

The splendid appearance of many of the articles very often causes people to "sell themselves" on them. They realize at once that this or that piece would add that touch to their bathroom that they would like to have, besides giving real service to the users.

Many dealers report a steady development in this business as a result of the enterprise of manufacturers in getting out new designs and in keeping pace with the demands of the public for quality articles.

Good Talking Points

Aside from their splendid appearance the majority of the bathroom fixtures give the dealers real talking points to emphasize. It is obvious that they are well made and well finished. Many of them are nickel-plated, and as they are made of brass may be guaranteed not to rust or corrode. They are easily kept in good condition and looking nice. Many a house builder these days is breaking away from the old-time idea of putting the bathroom in some obscure part of the house, under a stairway or hidden away at the back. The new idea is to make the bathroom one of the most useful and attractive rooms in the house. Dealers state that many home builders now state that they want to be as proud of their bathrooms as they are of their drawing rooms, and that with this idea in mind they want fixtures in keeping with the costly equipment they are installing.

Means Good Business

This idea is apparent in the money that is being spent on equipping bathrooms in hundreds of the better class of houses that are now being built, and it offers some splendid opportunities for business for the dealer who can supply the goods. A great many of the plumbing firms are realizing it and are cashing in on the opportunities offered. A big share of the business is secured because they have learned the value of letting people know they have the stock, and of keeping it well arranged in their display rooms and windows.

Dealers also state that even in the older houses the owners are good buyers of the new fixtures. They say that the new lines carry a strong appeal to buyers because they help to make for better bathrooms no matter where they are installed and the smallest bathroom can be greatly improved by the installation of handsome new fixtures. People realize this, the dealers say, and buy the equipment.

ONTARIO FIRE LOSSES

Smaller in 1919 Than in Either of Two Previous Years

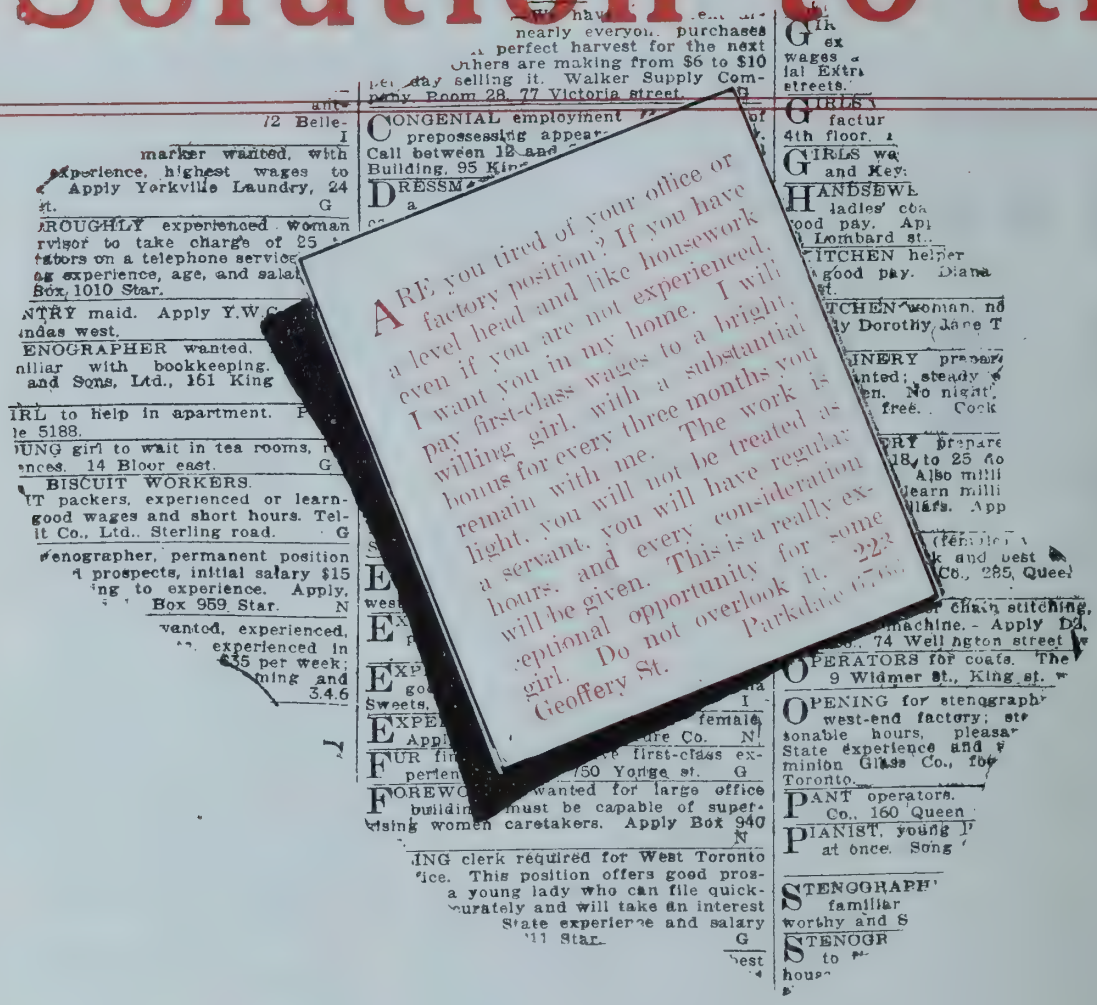
Official figures of fire losses in Ontario during the year 1919, issued by Fire Marshall E. P. Heaton, indicate that the losses were comparatively low during the year. There were some 9,000 fires in the Province during the year with a total loss of $9,490,478, a figure that compares with $15,673,240 in 1918 and $10,365,539 in 1917. The largest fire during the year was the Port Colborne elevator explosion which occurred in August.

Of the total loss $6,301,813 was covered by insurance and $3,188,665 was not insured.

W. J. Elliott Becomes Vice-President

Directors of The Whitman & Barnes Manufacturing Company, following the annual meeting at the general office in Akron, Ohio, elected W. J. Elliott, manager of the St. Catharines, Ont., factory, a vice-president. Mr. Elliott will be in entire charge of the Canadian division of the company's business—selling and manufacturing. Twenty-seven years ago he entered the employment of Whitman & Barnes, in a minor position. Advancement from one position of importance and responsibility followed rapidly, when in January, 1908, he was made manager. His promotion to the official circle of the company is a merited recognition of his excellent services and the confidence in which he is held by the corporation.

Solution to the


ARE you tired of your office or factory position? If you have a level head and like housework even if you are not experienced, I want you in my home. I will pay first-class wages to a bright, willing girl, with a substantial bonus for every three months you remain with me. The work is light, you will not be treated as a servant, you will have regular hours, and every consideration will be given. This is a really exceptional opportunity for some girl. Do not overlook it. 223 Geoffery St. Parkdale 67

There's a field for the plumber to make the home more attractive to domestic labor

Domestic Problem

The home-labor problem will be overcome more quickly when kitchens are equipped with such labor-saving conveniences as the

PORT HOPE SANITARY *"Five in One"* COMBINATION

A glance at the want columns of a daily paper will show you why a determined effort on the part of the housewife must be made to get and hold her home-labor.

You can assist her by fitting her kitchen with such labor-saving equipment as the Five-in-One Combination as here shown.

This combination saves miles of steps in the year, lightens kitchen work to the minimum, adds a zest to the labor of the home and makes it easier for the housewife to compete with the attractive propositions offered by commercial activities.

The "Albert" Combination is shown on page 62 of "For the Home" catalog. Yours for the asking. **Carry it with you.**

Port Hope Sanitary Mfg. Company, Limited

Factory:
PORT HOPE, ONTARIO
TORONTO SHOW ROOMS
119 King St. East

WINNIPEG OFFICE
405 Tribune Bldg.
HALIFAX OFFICE: McCurdy Building, Hollis Street

Head Office:
ROYAL BANK BUILDING, TORONTO
MONTREAL SHOWROOMS
234 Beaver Hall Hill

Points About Pumps and Injectors

Practical Discussion About Their Operation Which Contains Useful Information to the Men in the Trade—Principles Upon Which These Widely Used Devices Are Constructed and Work

PUMPS may be divided into several classes, reciprocating, rotary, and centrifugal. Those of the reciprocating class which have one or more cylinders are named simple, duplex, triplex, etc., acording to the number of cylinders. Some are single-acting, others double, that is, they either force water into the boiler or discharge pipe during one or both strokes. They may be horizontal or vertical, belt-driven, gear-driven or connected direct to a steam cylinder. Some pumps have pistons, others plungers.

Young men especially will do well to get all the information they can on pumps. The boiler feed pump is one of the most important things in the boiler room, and should be thoroughly understood, not only boiler feed pumps but every kind, suction, lifting, force pumps, etc. Examiners, as a rule, shoot over quite a number of interesting questions in regard to pumps in general.

The Suction Pump

A suction pump is shown in Fig. 1. You will notice that it has a valve of the non-return type in the suction pipe, and one or more similar valves in the piston, or bucket as it is sometimes called.

Do not tell the examiner that a suction pump works by suction unless you understand just what is meant by suction. Webster, in the Collegiate Dictionary, says "Suction is drawing by exhausting the air."

Forms a Vacuum

In the type of pump shown in Fig. 1 the piston with the valves closed on the suction stroke forms a partial vacuum behind it in the cylinder and the pressure of the atmosphere causes the water to rise in the suction pipe through the suction valve into the cylinder. At the end of the stroke the piston starts to descend, closing the suction valve, and forcing the water through the valves in the piston. On the next stroke the water that has passed through the piston is discharged through the discharge pipe. The piston at the same time is now making its second suction stroke, and so on.

An Important Point

An important point to bear in mind is that the pressure of the atmosphere will only sustain a column of water a certain height, hence it follows that the greatest distance that the piston should be (when at the top of its stroke) from the surface of the water is about 28 feet. Though the atmosphere is said to balance a column of water some 33 feet in height, allowance must be made for any air leaking through the valves, the weight of the suction valve, etc.

A Lifting Pump

If it is necessary to raise water from a greater distance, a lifting pump is used, the action of which is the same as the suction pump, with the addition of a non-return valve in the discharge pipe, to prevent the return of the water. The pump itself is located within the 28 feet from the water and the delivery pipe brought up to the height where the water is to be discharged.

Action is the Same

The action of a suction pump and lifting pump are practically the same and are generally considered separate simply because the suction pump discharges at the pump level, and the lifting pump above the level of the pump.

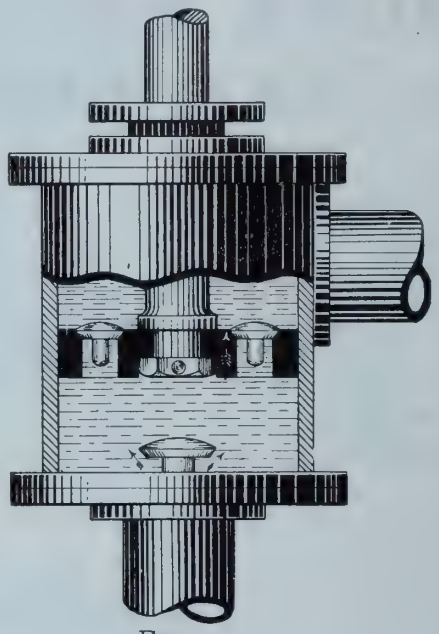


Fig. 1.

Another form of pump is the force pump, Figs. 2 and 3, which has no valves in the piston but on the suction and delivery. A plunger instead of a piston or bucket is used when it is necessary to force water against heavy pressure. This obviates the necessity of keeping a watertight piston, which is difficult to do against high pressure.

Different Designs

The number of different designs and size of pumps on the market are legion and a description of each is not at all necessary, as it is the principle upon which they are all based that is the important point, and though simple, quite a number of important points occur when in operation.

Boiler feed pumps, in the majority of cases, are direct-driven, that is the plunger or piston-rod from the pump is connected on the opposite end to a piston working in a steam cylinder, and may be single cylinder, duplex or multiplex. A duplex pump which is used extensively consists of two steam cylinders and two water cylinders. The steam valves on the one side are operated from the opposite side and vice versa. The suction and delivery pipes are common to both pumps.

Boiler Feed Pumps

The chief points in considering a boiler feed pump are, that they should be large enough, having a capacity of at least 1 cub. foot of water per horsepower per hour, should be quiet in operation, economical in steam consumption, have no dead centres, and as few parts as possible.

If the suction pipe is long it should be provided with a foot valve on the end just above the strainer. Both suction and delivery pipes should be kept as large as the openings in the pump permit, should be free as possible from bends, and all joints well made, especially on the suction pipe, for if these are not airtight, trouble will be the result.

A Good Supply

In fact, providing there is a good supply of water and suffiicient power to move the plunger a pump fails because of one thing only, and that is, there is a leak somehere, either in the suction pipe, in one or more of the valves, or the piston, etc. It is very important that you locate the trouble quickly when your pump fails, by opening the petcock on the side near the bottom of the pump and noticing if water is discharged through it on the discharge stroke only, or both suction and discharge strokes, or on neither suction and discharge.

Valves May be Stuck

If on either stroke your pump is not getting water, either through a leaky suction pipe, leaky piston, suction valves may be stuck, or the supply shut off, or

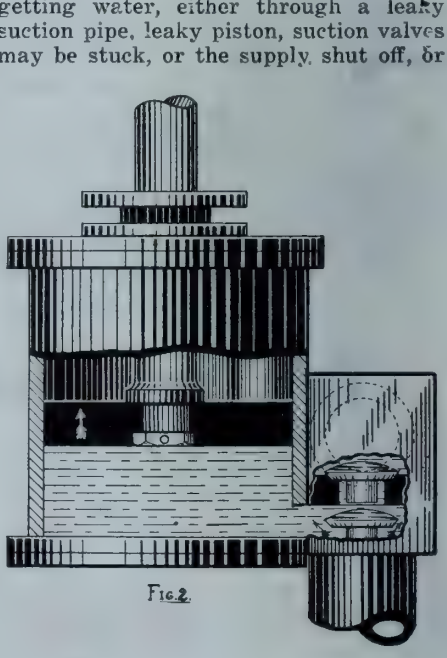


Fig. 2.

water too low in the well. Again, if you get a good force of water at both strokes your check valve and discharge valve may be leaking or prevented from returning to their seats for some reasons, perhaps some foreign substance is lodged on the seat, such as a match stem, chip of wood, piece of old packing, etc.

Steam Bound

If your water is too hot your pump is almost sure to give trouble, if not fail altogether by becoming steam bound, as a pump will not lift hot water but generally pounds badly, and the partial vacuum formed by the plunger is immediately destroyed by the vapor occupying the space.

If it is necessary to pump hot water then have the pump so located that the water will flow into the valve chamber, that is, put the pump below the source of supply.

Suction Air Chamber

A suction air chamber is a useful addition if the suction pipe is long or the pump is running at high speed, as it not only prevents pounding but assists in enabling the pump barrel to fill up when running at high speed.

A suction air chamber can easily be made with a piece of pipe the same size as the suction pipe, about two or three feet long, with a cap on top, attached in an upright position to the suction pipe close to the pump.

Delivery Chamber

The delivery air chamber, which should not be less than about five times the area of the water cylinder, also assists the pump by virtue of the air compressed there in forming a cushion, which acts on the delivery valves and also causes a more steady flow in the discharge.

For good results the velocity of flow

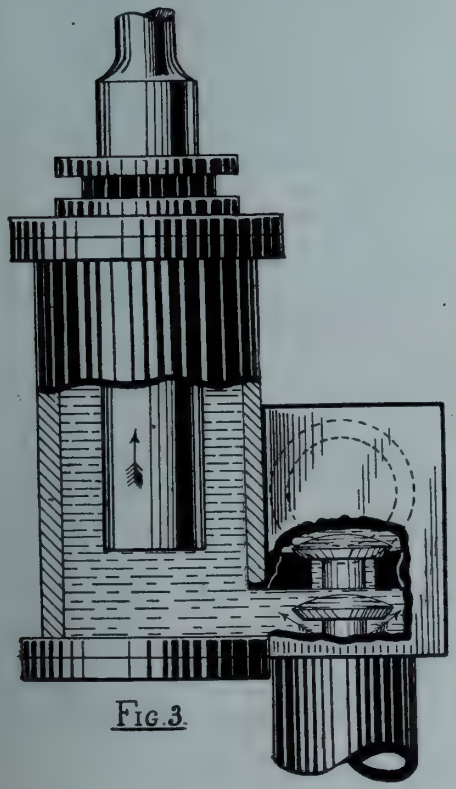


Fig. 3.

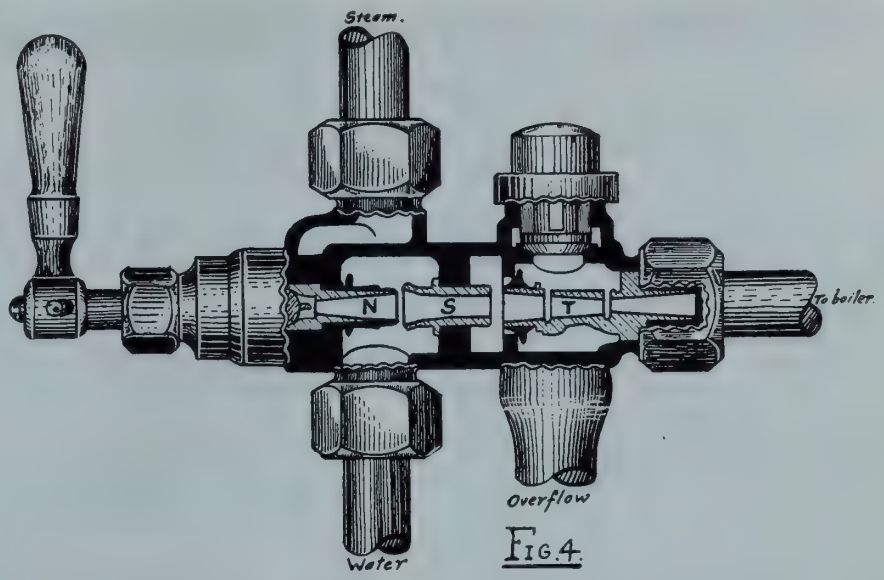


Fig. 4.

in the suction pipes of boiler feed pumps should not exceed about 200 feet per minute for small pumps, 400 feet per minute for single cylinder, and 500 feet per minute for a duplex pump.

Power for Pump

In calculating the power for a pump the number of foot pounds of work to be done by the pump must be considered, the boiler pressure it has to work against, the suction lift, and an allowance made for friction, etc. The suction lift being known, convert the boiler pressure into its equivalent head of water in feet by multiplying it by 2.31 and add to the suction lift, then, with the weight of water to be pumped, the foot pounds of work to be done can easily be calculated. As an example, a boiler has a pressure of 100 pounds per square inch, and the suction lift is 15 feet; you wish to find what horsepower it will take to put in 625 gallons. Then $2.31 \times 100 + 20 = 251$ feet head; 625 Imperial gallons weigh 6,250 pounds, and $251 \times 6,250 = 1,568,750$ foot pounds. One horsepower = 33,000 foot pounds; $1,568,750 \div 33,000 = 47.54$ horsepower nearly; allowing 25 per cent. for friction, etc., $47.54 + 25$ per cent. $= 59.425$ horsepower. That is to do the work in one minute. If one hour is taken to do the work it will require $\frac{1}{60}$ the power, or about 1 horsepower.

To Find the Size

Again, if you wish to find the size of feed pipe required for a boiler when a duplex pump is used, allowing a velocity of 500 feet per minute, divide the velocity, viz., 500 into 19.25 times the number of gallons per minute for U. S. gallons, or 23.1 for Imperial gallons. Thus, to pump 50 U. S. Gallons into a boiler a minute, $19.25 \times 50 \div 500 = 1.925$ sq. inches area of pipe.

And further, to find the number of gallons passing through a pipe in one minute, multiply the velocity in feet per minute by the area of the pipe in square miles and divide by 19.25 or 23.1 as the case may be.

Velocity of Flow

The velocity of flow may be found by multiplying the area of the water piston by its speed and dividing this by the erea of pipe.

In the Province of Ontario it is necessary to have two separate means of supplying feed water (Sec. 121), and the injector is used to such an extent that the student should be cognizant of its general principles. Fig. 4 shows one form which will serve our purpose for the present.

The action of the injector is based on the fact that the amount of work a moving body can do in being brought to rest varies as the square of the velocity. The steam from the boiler in passing through the steam nozzle N has its pressure reduced, first owing to the shape of the nozzle and second by coming in contact with water of a low temperature. This immediately gives the steam a high velocity and great kinetic energy, which creates a partial vacuum in the water space, inducing the water to pass through the suction jet S on to the delivery tube T with sufficient force to overcome the resistance of the boiler pressure in the feed pipe.

Must be Condensed

It is evident that unless the steam is condensed the injector will not work, and much trouble with injectors is caused either by giving the injectors too much steam, especially if the pressure and consequent temperature is high, or, if the feedwater is too hot, unless you throttle the steam a little.

Like pumps, injectors are affected in various ways—a leaky suction, too hot feed water, or the flow retarded by an accumulation of mineral deposit from the feed water.

Size of the Jet

It is important in the operation of an injector that the size of jet remains unaltered, this size is determined in the first place by the manufacturer, and much trouble has been caused by carelessly reaming or scraping the jet to remove the scale deposit, making the jet much too large, thus reducing the efficiency. It is far better to use a solvent to remove the scale such as dilute muriatic acid or some other scale remover.

Gas Companies Urge Adoption of British Thermal Unit

Candle Power Measurement is Condemned and Expert Calls Its Use a Crime

GAS companies operating in New York City are attempting to eliminate the practice of measuring gas quality by "candle power" units. They urge that a more proper measure is the British thermal unit.

In an effort to prove that the candle power standard has ceased to be serviceable to the consumer, an abstract is offered of testimony taken before Special Master Abram S. Gilbert in the company's suit to have the 80 cent law declared unconstitutional. One of the witnesses was Archibald S. B. Little, chief gas engineer of the Illinois Public Utilities Commission, who qualified as an expert, and who stated that he was the pioneer in the substitution of the modern heat unit standard for candle power requirements. He called the old system "a crime."

Questioned by William L. Ransom, counsel for the company, Mr. Little said that the British thermal unit standard had been substituted for the candle power, and then the record shows the following questions and answers:

Q. Is it your judgment that this candle power standard is a wrong standard?

A Certainly.

Q. And it adds greatly to the cost of making gas without corresponding advantage to the consumers?

A. Correct. The consumers cannot get the advantage out of the gas at 22-candle power.

Mr. Little said that his opinion agreed with that of gas engineers generally throughout the United States. Then Mr. Gilbert said:

"I am inclined to say something in my report on that point. I think it is pretty nearly time a stupid standard of that kind is eliminated, if everybody agrees to it."

Mr. Gilbert then asked the witness:

"But there would be an advantage to the public in getting a British thermal unit standard rather than the candle power standard?"

"Yes," was the reply, "it would be more to their advantage in New York City because you cannot make effective use of 22-candle power gas or any other gas at the ridiculously low pressure that this company is forced to carry in its mains."

Following the abstract from the record, the Consolidated says:

"The gas companies operating in New York City are still handicapped by the statutory obligation to work under the old candle power standard. In England, a moderate calorific standard has been in vogue for some years. In the more progressive States and cities in this country the heat unit standard is rapidly receiving the sanction of the public authorities, and it is to be hoped that in the near future a change from a candle power to calorific standard will be authorized for New York."

Want Duties Raised on Architects' Plans

Ottawa.—Members of the council of the Royal Architectural Institute of Canada conferred with the Customs Board, the object being the revision of the basis of appraisal on imported architectural and engineering plans.

The Royal Architectural Institute of Canada is a federation of all the Provincial architectural associations.

The institute claims that the Government can secure a considerable increase in revenue from this source.

A campaign will be inaugurated toward the development of Canadian architecture and engineering in Canada by Canadians.

Plumbers Pay at Hamilton

Hamilton, Ont.—John W. Bruce, international organizer, plumbers' and steam fitters' union, was in Hamilton last week to try and effect a wage settlement between the journeymen and the employers. The men ask 90 cents per hour. The bosses, it is said, won't budge from their offer of 80 cents per hour. The master plumbers will meet to reconsider the wage question. Mr. Bruce says the journeymen refuse to accept less than 90 cents per hour. "There's every probability of the men being on the streets unless 90 cents per hour is conceded," was Mr. Bruce's statement.

JOINS DOMINION RADIATOR STAFF

Parry Sound, Ont.—E. E. Elliot, who has conducted a plumbing business here for some time, has left to take a position with Dominion Radiator Co., of Toronto, as their representative for the territory east of Toronto to Prescott.

Claims Terraced House is Easier to Heat

Central Heating Plan May be Terraced to Advantage, Says Prince Albert Writer—Plan is to be Tried Out in Winnipeg in the Near Future

DISCUSSING editorially the question of terrace housing, which is contemplated in the city of Winnipeg, the "Herald" of Prince Albert, Saskatchewan, says:

The city of Winnipeg is again grappling with the housing problem. The great shortage of houses, due to four or five years of practical stagnation in the matter of building, and the growth of population, has left the city in such a position that a civic housing scheme is necessary, and Winnipeg is one of the few cities in the Dominon to take advantage of the federal housing scheme.

The question of terraced houses is at present occupying the attention of the civic authorities dealing with the matter, and a debate is going on as to the desirability of such houses, and one of the arguments used to their disfavor is the dull and deadly monotony of terraces. It is also said that such houses would only be occupied by the poorer class of tenants from whom rent collecting would not be a sinecure, and that the city would not find the matter profitable.

Such reasoning is weak. It is admitted that terraces may have a monotony that the separate houses do not have, but to hold this as a logical reason against them is much in line with the soldier settler who selected his quarter north of the city, the value of which a soldier settlement land inspector described as unequalled from a scenic standpoint, but worthless for farming purposes. What is needed at present in practically every city in the Dominion is a good supply of houses which can be rented at a reasonable figure. Initial cost is a primary consideration just now, and terraced houses can be built much cheaper than the same number of separate houses. There is, moreover, the valuable desideratum that the terraced house is considerably cheaper to heat than the single house. Heating is a consideration the value of which cannot be over-estimated in Western Canada. A house which is hard to heat is dear at any rental, but an easily heated house is worth living in. The terraced house is easily heated, and when the terraces are of considerable extent or built on a town planning system with twenty or more in proximity, a central heating plant would be a boon and a money-saver to the tenants. As to the dull monotony, a by-law prohibiting terraces on both sides of any one street and opposite each other would prevent that. The Winnipeg discussion is of interest to Prince Albert, because the housing problem is one which the city will have to face very soon, either publicly or by private enterprise.

OFFICIAL PROGRAM

For the Ninth Annual Meeting Ontario Society of Domestic Sanitary and Heating Engineers

APRIL 8th, 9th, and 10th

THURSDAY

10.00 a.m.—Meeting of Executive Committee.

2.30 p.m.—Conference on Welfare and Improvement Plumbing and Heating Industry.

8.00 p.m.—North Enders' Educational Club.

FRIDAY

10.00 a.m.—General Meeting.
President's and Officers' Reports.
General Order of Business of Ontario Society.

2.00 p.m.—Nominations and Election of Officers for 1920.

4.00 p.m.—Addresses on "Business Efficiency," "Provincial Plumbing Regulations."

7.00 p.m.—Banquet, King Edward Hotel.
Speaker, William J. Woolley, Evansville, Indiana, Manager of Trade Extension Bureau of United States Plumbing and Heating Industry.
Entertainer, Jules Brazil.

SATURDAY

10.00 a.m.—Meeting of New Board of Directors and Executive.

2.00 p.m.—Address by William J. Woolley on Trade Extension.

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Examination Board—The Directors

London By-laws Criticized

Alderman to Investigate and Report at an Early Date—Recently Appointed Plumbing Inspector Takes Exception to Criticism

LONDON, Ont.—As a result of criticisms which have been directed against the recently passed civic plumbing by-laws, all of which were given in last issue of "Sanitary Engineer," the city council has appointed Alderman Cunningham to investigate the situation fully and make a report at an early date.

The main charge against the new regulations is that they have been formed to protect the men in the plumbing business rather than the general public, especially the average householder. Some of the criticism has been very severe and there has been considerable of it.

Says it is Fair

Plumbing Inspector Young, who was recently appointed, takes strong exception to the criticism. The by-laws, he states, make for better workmanship all around.

"Any plumber who does his work according to the regulations," said Inspector Young, "has nothing whatever to fear. This set of regulations protects everyone, especially the public. If work is not done properly it will not pass inspection and surely that is far greater protection than the householder has ever had before. If people only knew it, or realized it, they will get better work now than ever and they will not be at the mercy of men who do not know the plumbing business and cannot do good work.

Another Complaint

Another complaint that is being directed against the by-laws is that it will put the small sanitary and heating engineer out of business.

"It does not matter to me," said Inspector Young, "whether a man only works by himself, or whether he has 100 men working for him. He will get just the same treatment. The quality of the work is what counts. If it isn't right it is going to made right."

A Case in Point

The question of installing water heaters is a case in point. Formerly many of these were installed by steamfitters or gas fitters. According to the new regulations no water connections can be changed now by anyone but a licensed plumber.

"The by-law," said Inspector Young, "expressly states that no permits shall be granted for any work excepting to a licensed plumber in the employ of a licensed master plumber. The by-law applies to any portion of the drainage, ventilation or water system of any hotel, warehouse or dwelling."

Londoners Object to Outsiders

London, Ont.—A merry row is in progress between some of the master plumbers of this city and the Ontario Society of Domestic Sanitary and Heating Engineers. It has its foundation in the fact that during recent months several "fat" contracts for local jobs have been awarded to Toronto firms, one company having secured contracts that run into many thousands of dollars.

The point about which the local men complain is that the Ontario Society is taking no action to keep Toronto or other sanitary and heating firms at home. The feeling is tense here over the matter.

The local men are going to try to have by-laws passed which will put outside firms under the ruling of the Transient Traders' Act and subject them to a heavy license fee in case they try to come in again.

Building Boom Predicted For London

Notwithstanding the fact that prices of all building materials are high and labor costs are greater than they were last year, there are many indications that the building trades in London this year will have one of the busiest seasons ever experienced. This is the opinion expressed by all contractors and builders and by the architects as well. In fact many contractors already have enough work on hand to keep their men busy all summer.

Factory buildings are likely to figure largely in the building program this year. It is expected that approximately $750,000 will be expended on new manufacturing buildings during the next six months. In addition to this, there is a probability that some of the local manufactures will make considerable expansion during the summer. At the present, plans calling for the total expenditure of $3000,000 are being prepared for some of London's largest manufacturers. It is expected that the major portion of the work planned will be carried out.

Residential construction will also amount to a considerable sum in London during this year. While the number of permits issued to date have not been large, it is known that there are many large houses being planned now. A great number of these will cost in the neighborhood of $15,000 each. L. H. Martyn, one of the large contractors of the city, stated that there is little doubt that quite a number of these houses will be constructed this season.

There is also considerable activity being shown in the erection of a lower-priced house, ranging from $6,000 to $9,000. It is anticipated that many of these will be completed before the year ends.

As an indication of the wealth of the city the number of citizens planning to erect garages may be taken. It is stated that the number of these buildings now being demanded is astonishing. In fact the contractors can hardly see their way clear to accept all of this class of work that is offering. Many prefer to take the larger jobs only.

Conditions Bad in Kingston

Kingston, Ont.—The Board of Health is starting a compaign against landlords who rent unsanitary houses and derive large revenues from them.

A detailed report was given before the board by Sanitary Inspector W. H. Carson regarding certain downtown rooming places which he had been requested to inspect and not one of them fulfilled the law requirements. Some of them are breeders of disease, ill-lighted, unsanitary, overcrowded and general filthy. Notices are to be served upon some owners that they must improve the buildings for habitation or they will be summoned before the police magistrate. Some of the houses will be ordered closed to human occupation unless they are made wholesome. The members of the board intend paying a visit some time to a few of the places which the inspector condemns and seeing how a numer of children are brought up under miserable conditions. In most of the places condemned, coal oil lamps are used for lighting and this practice is considered dangerous. An effort will be made to have the Municipal Act amended so that it will be compulsory for all rooming houses to be lighted by gas or electricity.

The members of the board made it clear that they would stand no trifling on the part of landlords. The legal time limit will be given after service of the notice to improve, and if it is not heeded the board will use the powers given it.

It was decide that the sanitary inspector should be supplied with a uniform as this will aid him greatly in his work. The board also recommend an increase in the salary of Inspector Carson, whose work has increased considerably, and who is giving the city excellent service.

Courtwright Water Supply

Courtright, Ont.—In January a bylaw authorizing the installation of a municipal waterworks system was passed to replace the private systems which have been in existence for some years. Last week the provincial engineer representing the health department in Toronto, the officer from Sarnia, and Mr. McLean, the engineer from Sarnia, met the Town Council and authorized the putting in of filtering tanks and advised the intake pipe being extended farther out in the river to insure the purity of the water supply. It is expected the work will begin as soon as final arrangements are made and the weather permits.

News of Ottawa Craft

THE plumbing trade is the only one in Ottawa which has reached an agreement with its workers so far. The journeymen plumbers presented their demands early in the season, and very little time was lost in reaching a settlement. Under the new agreement, the workers are to receive 75 cents an hour till May 1 this year, after which they will receive 80 cents. There will be no change in the hours of labor.

Two Inspectors

Ottawa has now reached the stage where it has been found necessary to employ two plumbing inspectors. In engaging a new inspector, the Health Department has given the preference to a returned soldier, William T. Carkner, who had considerable experience in the plumbing business before going overseas. Mr. Carkner has been made a permanent employee, at a salary of $1,500 a year.

Building Delayed

New building operations in Ottawa are being delayed pending an agreement between the workers and the employers. Committees of the local branches of the Canadian Association of Building Industries and Building Trades Council spent several days last week negotiating the agreements presented by the different crafts represented in the building trades, calling for increased wage schedules and better conditions. The various offers have been made by the employers, and are now being discussed by the different unions. It is likely all the agreements will be signed before April 1 this year.

Debatable Clause

However, there is one debatable clause in the agreement which may cause trouble. This is the provision for a closed shop, which the workers are insisting upon and which the contractors are strongly opposing.

It was undoubtedly owing to the uncertainty of the situation, as regards the new agreements, that only nine building permits were applied for during the month of February. These represented an outlay of $57,500. One was for an apartment house, at an estimated cost of $20,000. Only one of these permits was for a house, and that a small frame dwelling, to cost $1,800.

Want Improvements

Ottawa's suburbs are showing a keen desire these days to obtain up-to-date systems of sewage disposal. On the west side of the city, Westboro, on the Britannia line, is asking for an extension of the sewage system, to take in 1,400 acres. Surveys are now being made on this proposal. If the scheme is adopted, it will mean the building of an intercepting trunk sewer along the Ottawa river, with subsidiary sewers up through the district.

Then, on the east side of the city, Eastview is planning to build sewers along the Montreal road, with an outlet connection to the trunk sewer draining Ottawa South. From this sewer it is intended to build laterals throughout the village of Eastview.

Designed a System

Commissioner of Works A. F. Macallum has designed a sewage disposal system for the British American Nickel Company, at Deschenes, Que., which is just a few miles from Ottawa. The system comprises creens, tank and secondary treatments. It will be built by the company, and will likely be in operation towards the end of April. The British American Nickel Company will employ six hundred men this summer.

TENDERS

Regina, Sask.—. S. Ryan, Hamilton St., Regina, plans to erect garage costing $50,000.

W. Lessard, 1400 Wellington St., Verdun, contemplates erection of store and residence costing $25,000.

Lac La Biche, Alta.—John Mackriss contemplates erection of hotel this spring.

St. Jean Bte De Rouville, Que.—Stanislas Chabot contemplates erection of store and residence costing $4,000.

Canadian Consolidated Rubber Co., 201 Inspector St., plan to start on erection of factory buildings this spring. Sec'y, W. Binmore.

Montreal, Que.—G. T. Rly., McGill St., plan to purchase old railroad Y. M. C. A. building and to remodel it into offices. President, H. G. Kelly.

London, Ont.—London & Western Trusts Co. contemplate erection of office building. Manager, John S. Moore, 382 Richmond St.

Sherbrooke, Que.—Plans are in progress for warehouse, garage, stables, etc., for Imperial Oil, Ltd., 56 Church St., Toronto. Supt., Mr. Henbert.

Storey & Van Egmond, architects, McCallum Hill Blk., are preparing plans for hotel costing $120,000 for R. H. Williams.

Thetford Mines, Que.—Asbestos Crude & Mineral Corp. will start work in spring on storage shed costing $4,000. Manager, C. Bindmore.

Sudbury, Ont.—P. J. O. Gorman, architect, is preparing plans for general stores and offices costing $30,000 for Chas. Davis.

Thorold, Ont.—The "Semi-Weekly Post," Albert and Ormand Sts., is receiving tenders for installation of hot water heating system.

St. Thomas, Ont.—Elgin Milk Products Co. will have plans prepared for milk factory costing $20,000. Prices wanted on equipment.

G. J. P. Jacques, 5 Medbury Bldg., is preparing plans for business college building costing $40,000 for J. S. McCallum, Auditorium Bldg.

St. Paul De Metis, Alta.—Paul Trudel has plans drawn for hotel costing $25,000. Excavation work will start in spring.

Windsor, Ont.—City plans to erect city hall costing $500,000. Mayor E. Blake Winters. G. J. P. Jacques, 5 Medbury, Blk., is architect.

Timmins, Ont.—P. J. Gorman, architect, Sudbury, is preparing plans for church costing $75,000 for R. C. congregation; priest, Father Mr. Therriault.

Westboro, Ont.—Work will start in June on temple costing $40,000 for Westboro Masonic Temple, Ltd. Interested, F. Heney, D.D.G.M., Richmond Rd.

Winnipeg, Man.—C. J. Brown, city clerk, receives tenders until 3 p.m. March 23 for nurses home costing $300,000 for city. Plans with Bldg. Inspector, corner James and King Sts.

Newmarket, Ont. — Office Specialty Mfg. Co., Timothy St., have purchased site and will erect factory this spring. Managing director, Harry C. Slemin, 97 Wellington St. W., Toronto.

Shelburne, Ont.—Plans are drawn for alterations to bank building for Home Bank, head office, Toronto. Vaux Chadwick, 132 Church St., Toronto, is architect.

Canadian Leather Products, Ltd., 144 Front St. W., Toronto, and Davis Leather Co., Huron St., Newmarket, president, Hon. E. J. Davis, will amalgamate and will erect factory in the spring.

Timmins, Ont.—G. W. Hunt, architect, Confederation Life Bldg., Toronto, is preparing plans for business block to be erected here for J. R. Gordon, 1034 St. Clair Ave. W., Toronto.

Telkwa, B.C.—A. E. Foreman, Victoria, B.C., engineer for Provincial Dept. Public Works, receives tenders until noon March 22 for school. Plans with sec'y. School Bd., P. J. Watkinson, Telkwa, Govt. Agents at Vancouver and Smithers, and Dept. Public Works, Victoria.

Business Changes

Nanton, Alberta.—V. T. Shattock has purchased the plumbing and tinsmithing business of George Rogers.

Contracts Awarded

Moncton, N.B.—William Watson has heating and plumbing contract at $8,000 for the new bank being erected for the Canadian Bank of Commerce.

Bill Blithers Almost Becomes a Chief Engineer

This Little Tale is the First of a Series on the Adventures of Bill in Search of a Higher Education. Although He is Not Successful in This Story, We Still Have Hopes That He Will Succeed

P. O. Box 23,
Reubenville.

To the
VERYBEST CORRESPONDENCE SCHOOL,
Educativetown, Add.

To Whom it May Concern

Deer Sir:

Having notised your ad in the paper as how you can make a common hunkie into a chief engineer, I wish to tell you I want to be one of those as soon as possible. I am sending in the envelope the little coopon which you have in your ad, and have marked an X at the place and job I want to be in. Please tell me how much this is going to cost me and how long it will be before I can be a chief.

I am also sending you the picture that first made me think as ow I'd like to be a chief. The picture in the first part looks just like me, and I work on sewers just as this fellow is doing. I want to be like the other part of the picture, but without the cigar, as my wife don't let me smoke.

Will I have to study hard, or will I be able to read your lessons without much trouble, and what wage will I get in a job you show in the last part of your picture, for you don't say in your ad.

Please answer quick, telling me all particulars, for I've got awful discontented since reading your ad, and seeing what I should have been. With best regards,

Yours,
BILL BLITHERS.

To WILLIAM BLITHERS, ESQ.,
Reubenville, Ill.

My dear Mr. Blithers,

To say we were pleased to receive your recent letter of the 18th is to put it mildly.

We can immediately see that you are fired by that noble spark called ambition, which, once it sets in to work (as it has in your case), means success. SUCCESS the way we should like to write it. May the writer be allowed to get away from the we standpoint, and talk to you rather like a friend than a stranger, for after reading your splendid letter I feel more like a friend than anything else, so for the balance of my letter it will be the I, rather than the we, that shall speak.

First I was pleased to see you had carefully read our advertisement. This is a good sign and denotes caution on your part. You know Mr. Blithers there are so many so-called schools who claim to be ten-day wonders, that one is apt to become confused in trying to separate the bad from the good. In your case, however, I see your keen judgment has stood you in good stead, for you have written to not only one of the best but THE best school in the entire country. As our name implies, we are the Verybest correspondence school.

You have marked your coupon absolutely correctly, and although at present your employment may be of the humble order, there is no reason why before long you cannot even excel the type of gentleman we portrayed in our picture No. 2. It is a pleasure to know that these two pictures impressed you, and it was particularly noteworthy that the individual in picture No. 1 looked somewhat like yourself. This point alone proves that you are the very person who should take up our course, as our pictures were drawn from life, and from an actual example of phenomenal rise in life.

Regarding your question if our lessons are difficult. This is only a natural question, and one which we feel sure we can answer satisfactorily. Your lessons will be far from difficult, for we have simplified each lesson until it has become mere routine.

I enclose a form which you can fill out and send to me by return mail. Kindly see that you send this form properly filled out by the very next mail as I am arranging to have your first lesson sent to you as soon as I receive the form.

Now, Mr. Blithers, regarding the price of our course, does not this seem to you a trivial matter, when your future is at stake? We do not as a rule talk price, for one is apt to think the amount a trifle high at first glance, but we find that by allowing the student to first fill out the form and sending along his first fee of $5 we have, unknown to him, started him on the road to success. However, since you have asked the question I might say that you place a $5 bill with the enclosed form and receive your first lesson at once. Then once a month let us have another $5.00 until the course has been paid. These payments will only go on for a matter of 10 months, which you must admit is not long.

Awaiting your form, and the $5.00.

I am,

Your well-wisher,
I WANT YOUR MONEY.

P.S.—Do not forget to mail the $5.00 with the form, for otherwise I could not hurry through your first lesson.

P. O. Box 23,
Reubenville.

To the
VERYBEST CORRESPONDENCE SCHOOL,
Educativetown, Add.

Mr. Want Your Money,

I beg to inform you that I received your letter, and I am sorry but will not be abel to join your school.

Yours regretfully,
BILL BLITHERS.

Educativetown.

WILLIAM BLITHERS, ESQ.,
Reubenville, Ill.

Dear Sir:

I cannot understand your recent letter. Do you think the price too high? I believe that you were backward at telling me this, so I have tried hard to get you some personal and special consideration,

and have at last succeeded in so doing.

Instead of $50.00, the regular price of our course, we will offer you for 5 days only a special reduction for cash, and believe me, Mr. Blithers, this is a wonderful opportunity.

Whatever you do, don't delay, but accept this splendid offer. In place of $50.00 we offer you this complete course in its entirety for not $40—not $30, but for half the real price, namely, $25.00.

Act quickly before it is too late. Send in your money at once.

I am,
Sincerely yours,
I WANT YOUR MONEY.
Educativetown.

WILLIAM BLITHERS, ESQ.,
Reubenville, Ill.
Dear Sir:

I am surprised at your silence, and your not accepting our generous offer.

Surely you were serious in your ambitions. If I didn't believe so I wouldn't bother writing further, but as I have good news for you I felt that I should write at once. After considerable trouble I have arranged for a space of 2 days only to let you have our course for $10.00. Imagine $10.00 in place of $50.00. You can hardly fail to see the wonderful offer this is, so I expect to see your enrollment in the next mail.

Very truly yours,
I WANT YOUR MONEY.
P. O. Box 23,
Reubenville.

To the
VERYBEST CORRESPONDENCE SCHOOL,
Educativetown, Add.

Dear Sir:

This isn't Bill Blithers speaking, but a better person than he—this is his wife.

Keep your course, and its special offers. My Bill started work on sewers, and knows sewers by heart. Why—he couldn't live without the smell of a sewer, so why tempt him away from it.

Besides, I don't think your blamed school is any good no how, $50.00 to $10.00. Bah.

Can I sell eggs that cost me 50c a dozen for 25c. No, I sell them for $1.00, so I guess according to these figures your course is worth about 25c. Even at that figure I wouldn't let Bill start it. He should by rights be a toolmaker or something like that, although in a way I still think he should still stick to sewers.

Believing this letter will be the last one,

I am,
BILL'S WIFE.

Editor's Note.—It was the last one on the above subject so she got her wish, to a certain extent, but Bill is not done for yet, by any means, and will be heard from at a later date in an entirely new role.

Prices on Enamelware May Advance; New Freight Rates Also a Factor

Raw Materials Very Scarce. Lumber is High, Also Labor—High Rate of Exchange

THE enamelware situation at the present time is in a rather unsettled condition, and present prices are very firmly held. The demand is said to be a very heavy one and manufacturers are busy keeping up with the ever-increasing orders.

About this season last year many of the sanitary engineers, although having an intimation that the demand would be heavy, held back their orders with the idea that prices would come down; this had a considerable effect on the manufacture as manufacturers had no definite idea what quantity would be required. The strike which came in the spring also held up production. On the other hand raw materials instead of getting cheaper were subject to continued advances, with the result that when the large amount of building started in full swing, those in the trade were nearly all demanding quick delivery, with the result that the makers gradually became further behind with their orders.

This may be the reason for the continued demand through what was usually the quiet season of the year. It is believed that at the present season manufacturers have the situation well in hand.

As to higher prices in the near future, some are of the opinion that they can hardly be avoided, and as one manufacturer put it: "According to present conditions prices will not be lower."

One of the main factors for higher prices is the high cost of raw materials. Pig iron, which is one of the basic metals, has scarcely ever been higher. Lumber, which is used in considerable quantities for packing, crating and many other purposes, has advanced, in some cases more than double. The increased cost of labor is not to be overlooked.

Another factor may be the higher freight rates, especially those on the U. S. railroads. Some have it that the U. S. Government lost very heavily at the rates they charged, notwithstanding the fact that it eliminated many offices and branches, as well as competition, being able to ship on the most convenient line. This being the case, it is the opinion of some that the corporations taking over these railroads will find it necessary to considerably advance freight rates, which would ultimately affect the cost of hauling any necessary materials.

Another important feature is the fact that in the manufacture of this commodity great difficulty is experienced in getting the enamel on the metal. Especially does this apply to bath tubs, as manufacturers state they never know whether the whole heat will be successful or whether in the cooling and other processes the enamelled surface will check or chip. This being the case the piece or pieces as the case may be are discarded. While this has nearly always been the case in the manufacture of this commodity, it is said to have a greater bearing on the situation at present, due to the higher prices of materials, coal, labor, and other factors. The high rate of exchange is also to be taken into account.

However, notwithstanding the high prices charged, it is believed the demand for the coming season will be one of the heaviest experienced for some time, as there hardly ever has been such a universal shortage of houses, and it is believed that people must have housing accommodation at any price.

ASK YOURSELF—

Am I hitched up right, or am I a round peg in a square hole?

Do I feel every drop of blood and every fibre in me tugging away at my ambition, saying "Amen" to my work?

Am I backing up my chance in life in every possible way, or am I sliding along the lines of least resistance?

Am I keeping myself fit to do the biggest thing possible to me every day of my life?

Am I working along the line of my talent, or am I getting my living by my weakness instead of my strength?

Am I strengthening my weak points, making my strong points stronger, and eliminating the things which are keeping me back, the enemies of my success?

Do I decide things quickly, finally, or am I forever on the fence, fearing to make definite decisions which I cannot reconsider?

Have I the initiative which begins things without being told to; which does things without waiting for others' instructions?

Do I dare to attempt the thing I instinctively feel capable of doing, and I know that I ought to do?

Have I the courage which dares to branch out in an original way, dares to make mistakes that may humiliate me if I should not happen to succeed?

Do I try to develop that bigger man back of the smaller man I am, by obeying the God-urge that ever bids me up and on to greater endeavor?

If you can answer the above questions in the right way, you will bring out a hundred per cent. of your ability instead of the fifty per cent. that the majority of young men are content to develop; you will attain your ambition and be what you long to be.—"Success."

TRADE NOTES

Good progress is being made on the big store on Bank Street, which is to be the new home of W. G. Edge, Ltd., plumbing and heating contractors. This firm will extend their activities to the sale of sporting goods when they move into their new establishment about the middle of April.

EDITORIAL COMMENT

ATTEND THE CONVENTION

ELSEWHERE in this issue will be found a programme of the convention to be held at Toronto in April. Every member of the craft should do his utmost to attend the meetings and take part in every discussion. There is no place where things can be so thoroughly sifted out and definite conclusions arrived at in regard to policy as at a gathering of this kind. In the past some of the most interesting discussions have taken place in this way and they have been invaluable to the men who were present and heard the various opinions. They have often received pointers which meant real money to them. In many cases they have received information which has led to their making changes in their business methods, which have made conditions much better in every way. It is this interchange of ideas backed by the spirit of co-operation which is always in evidence at such gatherings that makes the sessions valuable. The value of co-operation is becoming more evident every day. It must be quite obvious to all those who are following conditions closely, that close co-operation will be even more necessary and desirable in the future than it ever has been in the past.

PRICES STILL FIRM

ACCORDING to the *Iron Trade Review*, shipments of iron and steel in the United States, also bearing directly on the Canadian situation, are beginning to surmount to various obstacles that have held them back, but the improvement is not sufficiently pronounced to lend much encouragement or confidence. A new factor this week has been the flood conditions in the Pittsburgh, Wheeling and Eastern Pennsylvania districts which has further curtailed mill and furnace operations. Car and fuel shortages still represent the dominating influence on all sides. Stock piles of finished steel in mill yards still are growing as production keeps ahead of transportation. A McKeesport, Pa., plant has 375,000 boxes of tin plate awaiting cars. Another interest has 80,000 boxes. A Pittsburgh wire company has been accumulating over 25 per cent. of its output. The National Tube Co. last week managed to ship all but about 2,000 tons of its production. Mahoning valley plants are operating on a hand-to-mouth basis as respects fuel.

Buyers of steel generally no longer seem so anxious to seize upon tonnage for quick shipment regardless of price such as characterized their movements a few weeks back. This has tended further to free the market of some of its excitable and runaway tendencies and wide price fluctuations. Though under better control, steel prices exhibit no real weakness.

Talk of recessions in pig iron prices appear to be more of rumor than of fact. In this connection the astonishingly large bookings of the merchant furnaces of the country are pertinent. With but a few stacks missing, statistics just compiled by pig iron interests show the unfilled orders in merchant iron as of March 1, were approximately 4,775,000 tons. February's production and shipments by these farmers were slightly in excess of 600,000 tons. At this rate the normal marketable capacity of the country is sold up to Nov. 1. Total sales of iron in February are shown to have been more than 1,000,000 tons. Basic iron continues to demonstrate its true market position at $43 valley. Structural steel awards in February were the largest since June, 1918, and totalled 171,000 tons or 95 per cent. of fabricating capacity. Contracts this month, however, have been running in considerably less amount, indicating that high prices and prolonged deliveries are more effective in holding up work.

An interesting development in the export market is the re-appearance of sizable inquiries for pig iron from Europe, reflecting the shortage abroad. These negotiations now under way at New York involve 15,000 to 30,000 tons for the Continent.

CREDIT ACCOUNTS MUST BE WATCHED

AT present there does not appear to be many indications of lower prices in the majority of foodstuffs and, in fact, in other lines sold by the retail trade.

But sooner or later we come to the peak when there will be a more or less gradual decline to a normal basis. No one considers for a moment that prices will go back to where they were in 1914. As production, however, overcomes demand, as the demand for certain lines slackens there will inevitably be a readjustment.

Retailers for the above reasons should see that their credit accounts are in good standing. They should, in fact, be careful from now on as to who should receive credit and who should not. Customers should not be permitted to get behind with their bills. If a customer cannot keep his bills paid up now he never will be able to. It should be remem-

bered that many people are spending money to-day on things that are not absolutely necessary, and letting their accounts with their merchants go by. By cutting off some of these unnecessary purchases they will be able to keep their bills paid up to date, but if this is not done, they must continue to let some of these bills stand and they as well as the merchants suffer.

By starting right now to see that all bills are paid when they should be, the merchant will have the satisfaction of security whether declines in price take place to-day, to-morrow or six months from now.

A SOUND BUSINESS POLICY

WHEN Marshall Field first got a position in a store he lost it almost immediately. The proprietor of the store where he was working was amazed to see him represent goods for exactly what they were, and then charge only a reasonable profit. "You're a good lad," said the merchant as he paid Field off, "but you have no capacity for business."

Yet upon these very principles Mr. Field laid the foundation of a business that is known the world over and made a princely fortune. The same opportunity exists to-day and the same results will follow. Many men are being tempted as never before, perhaps, to get all they can. Very often they may substitute something just as good. These are steps in the wrong direction. Marshall Field wanted his store to be known as a place of fair dealing, a store to which housewives would know that even a child sent there on an errand would not be imposed on, or given substitutes. Sound dealing was the basis on which he worked and on which he achieved success.

SECURES BIG CONTRACT

IN the face of the keenest competition that perhaps has ever been encountered a British firm has just secured from the Belgian Government the largest order for locomotives that has been placed in the history of the business. American firms made every effort to land the order and reports sent out from Ottawa not long ago stated that it was almost certain that part of the business would come to Canada. The whole matter according to press dispatches centered around price and delivery and on these the British firm was able to make the best proposition. One of the most remarkable things in connection with the whole commercial world to-day is the ability British firms are showing to corral trade and the export and import figures are telling a story that has a significance all its own, especially to those who predicted that it would be years before Britain would be a competitor.

SPRING IS HERE

SPRING is here, and to the average individual it is a little more than welcome. After fourteen weeks of steady winter and severe cold and ice and snow, with hardly a let-up of any kind, most people are glad to see the snowbanks gradually disappearing under the spring sun. From the standpoint of the merchant the business outlook, especially for hardware merchants, was never brighter. People generally never had so much money to spend, factories are busy and there is a call for capacity production. Farmers are preparing for one of the biggest years they have ever had, and it is well to keep in mind that the farmer is the largest purchasing force in the Dominion. He has been a splendid buyer in the past, and indications are that he will be an even larger buyer, because he is putting a percentage of the profits he is making into improvements for his home, his equipment and other things which mean business for the hardware merchants. The worst trouble on the horizon of hardware merchants seems to be the difficulty in obtaining enough merchandise. Just how this situation is going to work out it is impossible to say at the present writing. One thing is apparent, and that is that manufacturers are looking forward to good business. Not even in pre-war days was there such a continuous activity in the way of new companies being organized and existing companies enlarging their capitalization and extending their plants or installing new machinery to take care of more business. Never in the history of the Dominion has there been such a stream of inquiries for the products of Canadian factories as are coming to the Trade and Commerce Department.

JUDGE ROBSON'S RESIGNATION

WITHOUT saying a great deal about the real reasons behind his resignation as Chairman of the Board of Commerce, Judge Robson, in the correspondence that passed between himself and Sir George Foster, frankly states that his short experience with the working of the court had placed him entirely out of sympathy with the working of the Act. Reading between the lines one may fairly infer that Judge Robson has a good deal of sympathy for some of the suggestions that have been coming from the retailers of the Dominion in reference to the working of the Board and for making it of practical assistance to themselves and to the public. It may be that the action of Judge Robson will materially hasten changes in this direction by drawing to the attention of the Government the real state of affairs. There may be considerable significance in what Judge Robson wrote that the Act is fairly effective in reaching the retailers, but not in reaching the manufacturers. He also condemns the Act for removing "the last chance of the consumer to do anything for himself in reducing the cost of living." These statements are brief, but direct, and are characteristic of Judge Robson. It may be that they will prove the handwriting on the wall for those who are shaping the future activities of the Board of Commerce.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

Favors Pipe Line From Niagara River

St. Catharines, Ont.—The Provincial Board of Health will install laboratories at Chippawa and Port Colborne to make comparative analyses of the quality of the waters of Niagara River and Lake Erie at those respective points before any final estimates are made for the proposed pipe line to supply the municipalities in the Niagara district with water.

This statement was made to a meeting of fifty representatives of all the municipalities in the district between Port Dalhousie and Port Colborne and from Stamford and Niagara Falls, by F. A. Dallyn, Provincial Sanitary Engineer, who desired to show the meeting that it was more desirable to take water from the Niagara River at Chippawa than from Lake Erie at Port Colborne, as originally proposed by the Federal Engineers.

Overseas Veteran Purchases Business

Nanton, Alberta.—Owing to ill-health George Rogers has sold his plumbing and tinsmithing business to V. T. Shattock. Mr. Rogers has been engaged in the business in Nanton for the past eight years, part of which time he was with Nixon & Hewer, but the last three or four of which he has been in business for himself. Before coming here he was engaged in the same work in Ontario.

The new proprietor has been employed by Mr. Rogers since returning from overseas last summer. He was a former member of the 56th battalion, and went overseas with the 211th in 1916. Previously to enlisting he was employed in this line of work in Calgary.

May Be Fined $100,000 For Not Obeying Order of the Health Board

Ottawa.—The city of Hull faces the risk of a fine of something like $100,000 owing to its refusal two years ago to instal a mechanical filtration system for the purification of its water supply, which was ordered by the Quebec Provincial Board of Health. This fact was brought to the attention of the city council at a meeting, when the city solicitor, J. W. St. Marie, asked the council, by a letter, as to what action he should take towards defending the action, which, he stated, the Provincial Board of Health had instituted against the city, and which he wrote was to come up in Superior Court shortly.

Mayor Cousineau stated that the city stood in a serious position owing to its refusal to obey the mandate of the Board of Health, and a resolution was passed instructing the city solicitor to proceed to Montreal and ascertain what could be done.

Housing Company is Formed at Galt

Galt, Ont.—Organization of the Galt Industrial Housing Company, Ltd., to be formed under the Ontario Housing Act of 1914, is being proceeded with by the provisional directors appointed by the Board of Trade and the City Council. The company will be capitalized at $100,000; $85,000 to be raised through securities guaranteed by the municipality.

Obituary

The death occurred at Calgary of James E. Wilson, under whose direction the greater portion of the city's waterworks and sewage construction was carried out. He was a resident of Calgary for thirty-five years. The funeral, which was held under I.O.O.F. auspices, was very largely attended.

Trade Notes

H. E. Trafford & Co., plumber, Montreal, have dissolved partnership, and a new firm has been formed under the same style.

The Brown, Boggs Co., Ltd., of Hamilton, Ont., manufacturers of sheet metal goods, are erecting a $25,000 addition to their factory.

Contract Is Let For Waterworks Pumps

Lethbridge, Alta.—The contract for installing the pumping equipment for the city waterworks, as the result of the voting on the by-law, has been granted to the firm of Gorman, Clancey and Grindley, of Calgary. The contract provides for the supply, according to specifications supplied, of one high lift pump and condensor and one low lift pump, each with a capacity of 4,000,000 imperial gallons per day, for the sum of $18,354, duty, freight, exchanges, and all other charges paid, delivered Lethbridge, payable at Calgary.

Other firms tendering were the John Inglis Co., of Toronto; the Taylor Engineering Co., of Vancouver; the Canadian Fairbanks-Morse Co., of Calgary; the Fraser-Chalmers Co., of Canada, Montreal; the Canadian Allis-Chalmers Co., Calgary.

It is expected that the new equipment will be installed by July.

Was in Business in Montreal For 40 Years

Montreal.—Duncan Gordon, of 89 Crescent Street, a member of the firm of Gordon & Egan, master plumbers, passed away at his home from heart disease.

The late Mr. Gordon was born in Dingwall, Rosshire, Scotland in 1845. He came to Canada fifty-two years ago and engaged in the plumbing business at Montreal, where, until twelve years ago, he was in business on his own account. At that time he connected himself with the firm of Gordon & Egan, of which he was and continued to be senior partner.

Mr. Gordon took an interest in other matters besides his chosen vocation, and was a life governor of Montreal General Hospital and of the Western Hospital, and also of the Protestant Hospital for the Insane, of the Homeopathic Hospital and the Protestant House of Refuge. He was connected with St. Andrew's Society and belonged to the Stanley Presbyterian Church.

Mr. Gordon is survived by a widow and brother, William Gordon, of Montreal.

Merchants in Favor of Filtration System

Chatham, Ont.—At a meeting of the Retail Merchants' Association of Chatham, the project to construct an entirely new gravity rapid sand filtration plant in the city of Chatham was endorsed, and the water commissioners were recommended to submit a by-law to the people at the earliest possible date, empowering them to proceed at once with the work.

Says Sewage System Should Be Constructed

Glace Bay, N.S.—Dr. McNeil, medical health officer, in his annual report, refers to one or two things which require the attention of the civic authorities. One is the need of an improved sewerage system; the other is a more effective system of street cleaning. The installation of a modern sewerage system is a pretty

big proposition for Glace Bay, with its extensive area and long street mileage, but it is an undertaking that will have to be tackled sooner or later if sanitary considerations have any force. Dr. McNeil, however, states that while conditions are not as good as they might be they have been better for the past year than during any previous period.

Incorporations

The Purdy Company, Ltd., capital $40,000, head office Oshawa, Ont., plans to manufacture and deal in plumbing, heating and electrical supplies, and also in sheet metal products.

LETTERS TO THE EDITOR

These columns are open to contributions upon any topic of interest to the trade, it being understood that the views expressed are those of the contributors, and do not necessarily imply editorial indorsement. Names of contributors will be withheld, if desired, but name of writer must accompany correspondence as an evidence of good faith.

PLUMBING INSPECTORS

The efficiency of the trade depends on them, and they should be organized, not to advance their wages, but for the mutual benefit of the trade in general. As each one knows a little if they were to meet and talk things over, each one, no matter how clever, could learn something and those whose knowledge is limited would learn so much that they would become intelligent. So all you inspectors, from the Atlantic to the Pacific, get busy; get together and see what can be done. There is to be a Dominion Department of Health, and if the inspectors are to be of any use to it they should be organized. In fact all plumbing inspectors should be under its control, and a Dominion-wide law should be drafted with slight modifications for Nova Scotia, Southern Ontario and British Columbia. Colleges also should be asked to give correspondent courses for the old lads on the subject, and new ones should be appointed according to their merit in taking the course.

I know that Alberta has a course in sanitation, but from their papers I think they do not take up enough plumbing.

Another thing which should be taken up is, that at present we have the cities fairly well looked after, but the rural districts are the limit, and these are the more important as their products find their way into the cities and the way to trace disease is to prevent it, and if the health of the land is worth looking after the inspectors should be organized, and with all their different ideas should be able to help out the Dominion Health Department in many ways.

RATSY.

Commission Appointed to Investigate River Water Supply Project

Government to Secure Full Information Regarding Possibilities of Supply From the South Saskatchewan River

REGINA.—With the appointment of the other two members, the personnel of the commission appointed by the Saskatchewan Government to investigate the feasibility of the South Saskatchewan River water supply project has now been completed, and it is expected that preliminary work will be undertaken in the immediate future.

In addition to Major A. J. McPherson, who was appointed chairman of the commission some time ago, the Government has appointed W. F. MacBean, of Moose Jaw, and Thos. Teare, of Marquis, as the other two members, the Legislation enacted at the last session calling for the appointment of a commission of three.

The commission is now awaiting the appointment by the cities and the railway companies of their representatives who are to form an advisory board before any active steps can be taken, but in the meantime Major McPherson is lining up an organization as a preliminary measure. It is anticipated that the organization meeting of the commission will be held within the next ten days.

W. F. MacBean is a partner of Robinson, MacBean & Co., the largest departmental store in Moose Jaw, and he is recognized as one of the leading business men in Western Canada. Thos. Teare is a well-known agriculturist, who is farming on a large scale at Marquis, and he is also vice-president of the provincial executive of the new national policy movement. Both these men have taken a keen interest in the project, the latter acting largely as spokesman for the interests of the rural communities likely to be benefited if the scheme is eventually adopted.

The commission is not only empowered to investigate the feasibility of the scheme and its probable cost, but also to ascertain what rights have been reserved to this province in the use of the waters of the South Saskatchewan River.

Purchasing Agents Will Insist On 100 Cents for the Canadian Dollar

The Purchasing Agents' Association of Toronto, affiliated with the National Association of Purchasing Agents of New York, and representing a buying power of over $100,000,000, passed the following resolution at their meeting held in the King Edward Hotel:

"That, owing to the abnormal rate of exchange now prevailing between Canada and the United States, the Toronto Purchasing Agents' Association are resolved to favor wherever possible those firms who, appreciating these conditions, agree to relieve the situation by accepting Canadian funds in payment of our purchases."

Copies of this resolution will be sent to the National Headquarters in New York and to United States firms doing business in Canada. Copies will also be sent to the Minister of Finance at Ottawa and to the Bankers' Association. It is expected that the Ottawa and Montreal Associations will take similar action.

Mr. A. B. Kerr, who addressed the meeting, was of the opinion that many United States firms were adopting a policy of thrift. "The exchange situation has reached such serious proportions that it is time for drastic action, and we should do everything within our power to correct an intolerable situation," said Mr. Kerr. "If United States firms are unwilling to accept Canadian funds in payment of our purchases, then we would suggest three alternatives: Let them either open a Canadian bank account, accept payment in war bonds, or take long-term notes.

"A long list of United States firms have signified their willingness to open Canadian bank accounts; others have notified their Canadian customers that they will accept fifty per cent. of the exchange. It is the firms who will not make any concession that must be brought into line by some concerted action."

Mr. W. S. Leckie, of the Government War Purchasing Department at Ottawa, also addressed the meeting, and referred to the present difficulty the Government had in doing business with United States firms owing to the high rate of exchange.

The following officers of the association were nominated for re-election: J. I. Nicholson, Gunns Ltd., president; W. F. Dodd, Canadian Kodak Co., vice-president; G. P. Beswick, secretary; W. McG. Brown, Brown's Copper and Brass Rolling Mills, treasurer.

Adopt Profit-sharing Plan

St. Catharines, Ont.—Lord and Burnham Company has adopted a profit-sharing plan similar to that adopted by the Lord & Burnham Company of Illinois, and the Lord & Burnham Co., Ltd., of New York.

The plan is being printed in pamphlet form for distribution among employees in the three factories of the concern today.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

HIGHER prices are pending on Vitro closet tanks, present quotations having been withdrawn. The enamelware situation has not improved and raw material is as hard as ever to procure and while there is no immediate change expected, it may be that higher prices will be made if present conditions continue.

Soil pipe in spite of the many predictions for higher prices continues to hold unchanged. Range boilers are firm and manufacturers are shipping as fast as they can be made.

Lead pipe is very firm and advanced prices are expected. This is said to be due to the scarcity of pig lead, a situation which has just recently developed.

The difficulty of freight transportation is a serious setback in some localities. Some state that deliveries are often several weeks behind.

Scarcity of materials is one of the most important features that has to be overcome. Manufacturers state that very often they are forced to turn down large orders because they are unable to secure sufficient raw material to give specified delivery.

Jobbers state that business has seldom been better than at the present time and are extremely well satisfied with prospects.

No one seems to be paying so much attention to the price as they are to securing the stock and many have booked months ahead. Collections are very satisfactory.

TORONTO, March 13.—Owing to the scarcity of raw materials, many important lines are on the verge of higher prices. This applies to Vitro tanks, range boilers, soil pipe, lead pipe, enamel ware, boiler tubes, and other commodities.

This does not look encouraging for future prices on many of these lines, and it is hoped a solution may be found to relieve the present shortage of raw material and more satisfactory transportation conditions be found, in order to keep prices in hand, as no one wishes to see restricted buying.

Jobbers state that business is more than satisfactory, and that they are shipping goods as fast as they can procure them.

Firm prices rule on nearly all commodities.

Prices On Vitro Tanks Have Been Withdrawn

VITRO TANKS.—Prices on Vitro ware have been withdrawn pending higher quotations. This is said to be due to the higher cost of raw materials, labor and other factors.

Wrought Pipe Scarce; Price Remains Unchanged

WROUGHT PIPE.—The scarcity of some of the most common sizes is still prevalent, and manufacturers state they have difficulty in securing supplies of skelp. The freight transportation is also causing some shortage as available supplies are said to be coming forward slowly.

The exchange situation is also a factor it is stated.

The following are the present quotations:

PIPE — WROUGHT
Price List No. 43 — Feb. 3, 1920
STANDARD BUTTWELD S/C

	Steel Black	Steel Galv.	Gen. Wrot. Iron Black	Gen. Wrot. Iron Galv.
⅛-in.	$6 00	$ 8 00	....	....
¼-in.	4 83	6 96	$ 5 31	$ 7 44
⅜-in.	4 83	6 96	5 31	7 44
½-in.	6 42	7 99	7 10	8 67
¾-in.	8 11	10 24	9 03	11 16
1- in.	11 99	15 13	13 35	16 49
1¼-in.	16 22	20 47	18 06	22 31
1½-in.	19 39	24 48	21 59	26 68
2- in.	26 09	32 93	29 05	35 89
2½-in.	41 24	52 07	....	....
3- in.	53 93	68 09	....	....
3½-in.	68 54	85 56	....	....
4- in.	81 21	101 37	....	....

STANDARD LAPWELD S/C

	Steel Black	Steel Galv.	Gen. Wrot. Iron Black	Gen. Wrot. Iron Galv.
2- in.	$29 79	$36 63	$33 49	$39 96
2½-in.	43 58	54 71	49 43	60 26
3- in.	56 99	71 15	49 43	60 26
3½-in.	70 38	87 40	79 58	96 60
4- in.	83 39	103 55	94 29	114 45
4½-in.	95	1 19	1 20	1 45
5- in.	1 10	1 39	1 40	1 69
6- in.	1 43	1 80	1 81	2 19
7- in.	1 87	2 36	2 34	2 83
8-L	1 96	2 48	2 46	2 98
8	2 26	2 85	2 84	3 43
9	2 71	3 42	3 40	4 11
10-L	2 51	3 17	3 15	3 81
10	3 23	4 08	4 06	4 90

Terms—2% cash discount if paid within 30 days. Approved credit.

Lead Pipe Unsettled; May Go Higher

LEAD AND ZINC PRODUCTS.—The list as shown below are very firmly held, and higher prices may be looked for on lead pipe, it is stated. The basic metals have been very erratic of late, although manufacturers say other factors have a heavy bearing on the situation, that would affect the prices.

The following are the present quotations.

Lead pipe, list, per lb.	$0 16
Lead waste pipe, list, per lb.	0 17
Do., over 8 inches, list, per lb.	0 18
Above subject to discount of 10 per cent.	
Lead traps and bends	add 10%
Lead wool, lb.	0 16
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, per lb.	0 12½
Cut sheets, ½ to ¾c lb. extra, and cut to size 1c lb. extra.	
Solder, wire, lb.	0 45¾
Solder, strictly, lb.	0 40½
Solder, commercial, lb.	0 38
Zinc sheets, per lb.	0 19
Solder, guaranteed, lb.	0 43¾
Solder, wiping, lb.	0 37¼

Enamelware Firm; Prices May Go Up

ENAMELWARE.—The prices on enamelware are very firm and higher prices in the near future would not be surprising, it is stated. The cost of raw materials, labor and other conditions are said to be such that it may be necessary to advance prices on this line, although manufacturers say they are trying to keep to a low scale rather than restrict the turnover.

The following are the present quotations:

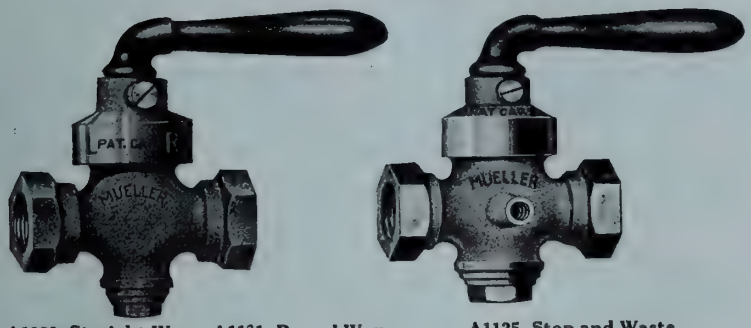
Bath tubs, roll rim, 4. 4½, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4345			11 05
18x24" Apron F154 or P3845 or P3847.			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9.05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Pipe Fittings Hold; Sales Very Satisfactory

PIPE FITTINGS.—Continue to hold at firm prices, no changes recently having been made. Business is very brisk

MUELLER
Ground Key Water Cocks

PATENT CAP
COLONIAL PATTERN



A1120, Straight Way. A1121, Round Way. A1125, Stop and Waste.

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

Dependability of MUELLER Ground Key Water Cocks is assured by the careful process of manufacture, providing the finest of core work thus insuring freedom from obstruction. Uniform thickness of walls is a MUELLER feature in this pattern.

The cocks will not waste from the pressure side at no point during the operation of opening or closing. No other make, to our knowledge, has this feature.

Every cock is tested at 200 pounds hydraulic pressure.

Canadian Money
Canadian Made
Should stay in Canada
For Canadian Trade

H. MUELLER MFG. CO., LTD.
SARNIA, CANADA

Are you on our mailing list?

and a large turnover is expected for the coming season, it is stated.

The following are the present quotations:

PIPE FITTINGS

Cast iron fittings	5%
Plugs	17½%
Bushings	20%
Unions, ¼-in. to 2½-in.	35%
Do., ⅛-in. to 3-in. and larger	30%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%
Do., Class C, lb. net	0 18
Do., 4½-in. and larger	10%

MALLEABLE FITTINGS

	Black	Galv'd
Malleable Fittings, Class A, lb.	$0 60	$0 75
Do., Class B, lb. net	0 27	0 37

Conductor Pipe Firm; May Be Scarcity

CONDUCTOR PIPE AND EAVES-TROUGH.—Prices remain unchanged although the situation is a firm one. Manufacturers state that they have difficulty in filling orders and that if galvanized sheets do not come forward in better quantities there may be a scarcity.

The present quotations are as follows:

PIPE (Conductor)

	Plain
2 in., in 10-ft. lengths, list	8 00
3 in., in 10 ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.
8-in.	$6 90	15-in. $12 50
10-in.	7 70	18-in. 16 00
12-in.	9 10	

F.O.B. Toronto, Oshawa, Ottawa. Add 5% to above list.

Range Boilers Firm; Sales Are Heavy

RANGE BOILERS.—The scarcity of raw materials continues to be an important factor, for firm prices on range boilers. The demand is very heavy and manufacturers state that they are shipping as fast as they can manufacture.

Many are wondering what will be the result when the season for this commodity opens up in full swing, if the demand is not equal to the supply during what is usually a more quiet period.

The following are the quotations current:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$12 00	$14 00
35-gallon	14 00	16 00
40-gallon	16 00	18 00
52-gallon	22 00	25 00
66-gallon	35 00	38 00
82-gallon	40 00	47 00
100-gallon	50 00	58 00
120-gallon	60 00	67 00

Soil Pipe Prices Firm; Prices Remain Unchanged

SOIL PIPE.—The firm situation on soil pipe continues unchanged. Although how long this condition will last is hard to say. Manufacturers claim that if the raw material and labor continues to advance, that higher priced soil pipe is inevitable.

However, manufacturers and jobbers state that business is very satisfactory and in some cases, have more business offered than they can comfortably handle.

The following are the present quotations:

Medium and extra heavy soil pipe, 2, 3 5 and 6 in.	10%
Medium and extra heavy soil pipe, 4 in.	15%
Medium and extra heavy soil pipe fittings, 2 in. to 6 in.	25%
8 in. extra heavy pipe and fittings	5%

Old Iron and Steel Hard to Procure

OLD MATERIALS.—Cast iron and steel of nearly all kinds, are reported to be very scarce, while copper and brass are more or less plentiful and likely to hold. White metal is very dear and is rather scarce. Business continues to hold out at firm prices and the outlook is very bright. A good, heavy buying trade is looked forward to till at least the last of May.

The following are the present quotations:

DEALERS' BUYING PRICES

Pipe scrap	....	11 00
No. 2 busheling	....	13 00
Stove plate, per ton	....	18 50
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 08
Scrap zinc	....	0 06½
Heavy copper	....	0 17
No. 1 machinery cast	....	24 00
Wrought iron, No. 1, per gr. ton	....	15 00
Heavy melting steel	....	15 00
Heavy lead pipe	....	0 06
Old rubbers, boots and shoes	....	0 06
Overshoes, lumbermen's rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 04
Heavy lead pipe	....	0 06

Situation Little Changed On Sheets and Plates

SHEETS AND PLATES.—The situation on this commodity shows little change and sheets and plates are as scare and hard as ever to procure, it is stated. In fact, some have it that they are almost harder to get on account of the ever increasing demand with the closer proximity of Spring.

Freight movements seem to be better with the coming of warmer weather. The high rate of exchange is also a factor of higher prices and is causing considerable inconvenience. Some jobbers state that it is necessary for them to pay a premium over current prices for this reason as well as other factors mentioned previously. The prices quoted below are nominal and are as follows:

BLACK SHEETS

14 gauge	....	8 00
16 gauge	....	8 10
18-20 gauge	....	7 45
22-24 gauge	....	7 55
26 gauge	....	7 60
28 gauge	....	7 75
3-16 inch plate	....	....
¼-inch boiler plate	....	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$10 00	$10 60	$10 45	$10 75
U. S. 28	9 60	10 20	9 75	10 35
U. S. 26	9 30	9 90	9 40	10 05
22 and 24	9 15	9 75	9 20	9 90
18 and 20	9 00	9 60	9 00	9 75
16	8 35	9 45	8 80	9 60
12 and 14	8 20	8 70	8 55	9 45

Higher Prices Looked For On Boiler Tubes

BOLER TUBES.—Are said to be very scarce and jobbers report very low stocks. The demand continues to be very brisk, and although no change in price has yet taken effect, higher prices may be named.

The shortage of skelp is said to be a big factor for the shortage of the finished product. One jobber stated that he did not expect much relief for maybe six months, and that he would not be surprised if the situation were to become worse. The following are the present quotations:

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	$.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 50	30 00
2 inch	32 00	28 75
2¼ inch	36 00	31 25
2½ inch	45 00	35 75
3½ inch	69 00	48 75
4 inch	96 00	62 50
3 inch	53 00	45 75
3¼ inch	.....	52 50

Pipe Wrenches Have New Prices

WRENCHES.—Both nut and pipe, of the Westcott brand have been advanced. This is said to be in line with prices on other commodities whose basic metals are iron and steel. The following are some of the new quotations:

Adjustable Nut Wrenches—	Doz.
6-inch	$11 75
8-inch	14 50
10-inch	17 40
12-inch	26 10
14-inch	34 75
Adjustable Pipe Wrenches—	**Doz.**
10-inch	18 60
14-inch	37 20

Pig Tin Erratic; Lead Still Scarce

INGOT METALS.—Tin is erratic, lead still continues scarce, the demand for spelter has improved, while antimony is rather quiet. The foreign exchange situation is not without its effects on some metals.

SPELTER.—The demand for spelter is much better, although quotations show no change, and are on a basis of 12 cents per pound.

COPPER. — Remains unchanged, although the demand is quiet. The quotation of 25 cents per pound is still current.

TIN.—The market on tin is erratic. The strengthening of the British exchange situation is having considerable effect on this commodity. The quotations on tin at present are around 73 cents per pound.

ALUMINUM. — Remains quiet, and is quoted at 35 cents per pound.

ANTIMONY.—Prices remain quiet, with no changes showing, the quotation remaining at 14 cents per pound.

LEAD. — The unexpected scarcity which has developed in the lead markets has as yet not been overcome. Stocks are low and it is difficult to secure new supplies; 12 cents per pound is the present quotation.

An Injector with features that close the sales

Morrison

Injectors that offer 40 pounds more field. A reliable, trustworthy injector that sells as well as it operates. Morrison High Pressure Injectors operate successfully on 20 lbs. low to 220 lbs. high steam pressure, from 4 to 300 horse-power, and are made in sizes from ⅜-inch to 2-inch.

These reliable injectors are but one of the popular and satisfying Morrison lines.

To sell them insures satisfied customers and a prestige for your business that maintains the respect of your customers.

The James Morrison Brass Mfg. Co., Limited
93-97 Adelaide St. West, Toronto, Ontario

Choose a Syphon That Insures Success

ANTHES SYPHONS

are that kind. Seamless, made in one piece and operating purely on natural laws, Anthes Syphons are dependable and satisfactory. They embody the qualities that insure the success of your work. Anthes Syphons are the heart of the system.

Anthes Foundry Co., Limited
Toronto and Winnipeg

AIR CONDITIONING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR RECEIVERS
Wm. B. Scaife & Sons Co., Oakmont, Pa.

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
Canadian Wolverine Co., Ltd., Chatham.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders and Engineers, Ltd., Cornbrook, Manchester, England.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.

ASBESTOS GOODS
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

BOILERS, HOUSE HEATING, GAS FIRED
The Dodd Heating Systems, Ltd., Toronto, Ont.

BOILERS, STEAM OR HOT WATER
Gurney Foundry Co., Limited, Toronto.
The Dodd Heating Systems, Ltd., Toronto, Ont.
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Lord & Burnham Co., Ltd., Toronto.
Modern Heating & Eng. Co., Ltd., Montreal.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOILER FITTINGS
Fittings Limited, Oshawa.

BOILER STANDS
Fittings Limited, Oshawa.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N.Y.

BRASS GOODS, VALVES, ETC.
Joseph Breeden & Co., Ltd., Birmingham, Eng.
Canadian Brass Co., Ltd., Galt, Ont.
Canadian Wolverine Co., Ltd., Chatham.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
G. & W. G. Gummer Ltd., Rotherdam, Eng.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

CELLAR DRAINERS
Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CHAIN WRENCHES
Trimont Mfg. Co., Roxbury, Mass.
J. H. Williams Co., Brooklyn, New York.

CLAMPS "C"
J. H. Williams & Co., Brooklyn, N.Y.

CLOSETS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
United Brass & Lead, Ltd., Toronto.

COUNTRY RESIDENCE EQUIPMENTS
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DAMPER REGULATORS
C. A. Dunham Co., Ltd., Toronto.

DEHUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

DRAINAGE FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders and Engineers, Ltd., Cornbrook, Manchester, England.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ENGINEERS
Modern Heating & Eng. Co., Ltd., Montreal.

ELECTRIC PUMPING MACHINERY
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Toronto Hardware Mfg. Co., Ltd., Toronto.

FUEL SAVING DEVICES
Modern Heating & Eng. Co., Ltd., Montreal.

FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

FITTINGS, CAST IRON, SCREWED, FLANGED, DRAINAGE AND MALLEABLE, SCREWED
Fittings Limited, Oshawa.

FILTERS (WATER)
Wm. B. Scaife & Sons Co., Oakmont, Pa.

FLUSHOMETERS
Canada Metal Co., Ltd., Toronto.
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.

FLOOR AND CEILING PLATES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

FURNACES
The Dodd Heating Systems, Ltd., Toronto, Ont.
Gurney Foundry Co., Limited, Toronto.
Steel & Radiation, Ltd., Toronto.

GAS APPLIANCES
Consumers' Gas Co., Toronto.

GASOLINE ENGINES
Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS
Consumers' Gas Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

GLOVES, WORKING
R. G. Long & Co., Toronto.

GRATES FOR RANGES, FURNACES AND BOILERS
McIntyre & Taylor, Toronto.

GREY IRON CASTINGS
Fittings Limited, Oshawa.

HEAT GENERATORS
Galt Brass Co., Galt, Ont.
James Morrison Brass Mfg. Co., Toronto.

HEATING APPARATUS
C. A. Dunham Co., Ltd., Toronto.
Modern Heating & Eng. Co., Ltd., Montreal.

HEATERS
Lord & Burnham Co., Ltd., Toronto.
Modern Heating & Eng. Co., Ltd., Montreal.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.

HEATING SYSTEMS
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Modern Heating & Eng. Co., Ltd., Montreal.

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HUMIDIFYERS
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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

MACHINISTS' TOOLS
J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS
Gurney Foundry Co., Limited, Toronto.
Fittings Limited, Oshawa.

MIXING VALVES
Canada Metal Co., Ltd., Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope

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G. & W. G. Gummer, Ltd., Rotherham, Eng.
Trimont Mfg. Co., Roxbury, Mass.

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R. G. Long & Co., Toronto.

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Canadian Wolverine Co., Ltd., Chatham.
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Kerr Engine Co., Walkerville.
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Beaton & Corbin Mfg. Co., Southington, Conn.
Fittings Limited, Oshawa.

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Canadian Tube & Iron Co., Ltd., Montreal.
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Steel & Radiation, Ltd., Toronto.

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Borden Canadian Co., Ltd., Toronto.
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Chamberlain Desolvo Co., Ltd., Toronto.
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Trimont Mfg. Co., Roxbury, Mass.

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Canadian H. W. Johns-Manville Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.

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Wells Bros., of Canada, Galt.

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Trimont Mfg. Co., Roxbury, Mass.
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Empire Mfg. Co., Ltd., London and Toronto.
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R. MacDougall & Co., Ltd., Galt.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

RADIATOR FOOT RESTS
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RADIATORS
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Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR TRAPS (STEAM)
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C. A. Dunham Co., Ltd., Toronto.
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United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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Hoyt Metal Co., Toronto.

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James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

STEAM TRAPS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

STOVES
Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL
Gurney Foundry Co., Ltd., Toronto.

SMOKE TEST MACHINES
James Morrison Brass Mfg. Co., Toronto.

SWIVELS, HOOK
J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL
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THUMB SCREWS AND NUTS
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James Morrison Brass Mfg. Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., & Co., Brooklyn, N.Y.

UNIONS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

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C. A. Dunham Co., Ltd., Toronto.

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J. H. Williams & Co., Brooklyn, N.Y.

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Galt Brass Co., Ltd., Galt.

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C. A. Dunham Co., Ltd., Toronto.

WATER SUPPLY TANKS
Wm. B. Scaife & Sons Co., Oakmont, Pa.

WATER SUPPLY SYSTEMS
Empire Mfg. Co., London and Toronto.

WASHERS, BUILDERS'
Fittings Limited, Oshawa.

WASHING MACHINES
Gurney Foundry Co., Limited, Toronto.

WRENCHES, SETS, DROP FORGED, ENGINEERS, SOCKET AND CHAIN PIPE
J. H. Williams & Co., Brooklyn, N.Y.

TRIMO

The four good points that make TRIMO PIPE WRENCHES superior are the SPIRAL SPRING always in place, STEEL FRAMES that will not break, NUT GUARDS that protect adjustment nut and the INSERTED JAW in handle that can be replaced when worn.

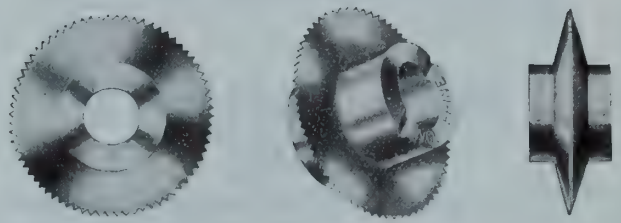
The Trimo Steel Handle Pipe Wrench is also made in the 6", 8" and 10" size with narrow jaws and fine milled teeth, especially adapted for close work.

Your Jobber can Supply

Trimont Mfg. Company

Roxbury (Boston) Mass., U.S.A.

Wolverine Steady Sellers



Saw and Fine Edge Cutters

There is a long, long line of Wolverine Products and a long, long rosy trail of profits for the dealer who handles them. For lack of space we can show but two here. See Wolverine Kantleak Floats, Wolverine Coil Furnaces, etc. Write for catalogue and discounts.

Wolverine

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Ont.

CANADIAN CONSOLIDATED RUBBER CO. LIMITED
DOMINION RUBBER SYSTEM
AND ASSOCIATED COMPANIES

PLUMBERS AND SANITARY ENGINEERS

More and more, plumbers and sanitary engineers are learning that Dominion Rubber System products can be relied on to give the utmost service.

What's more, the Dominion Rubber System range of supplies for their particular needs is so complete that everyone can be easily satisfied and at a minimum of cost.

If **you** have not experienced these advantages, it will pay you to investigate and see for yourself how reliable and economical Dominion Rubber System products really are. Distributed to the trade through Dominion Rubber System branches throughout Canada and sold by the best stores.

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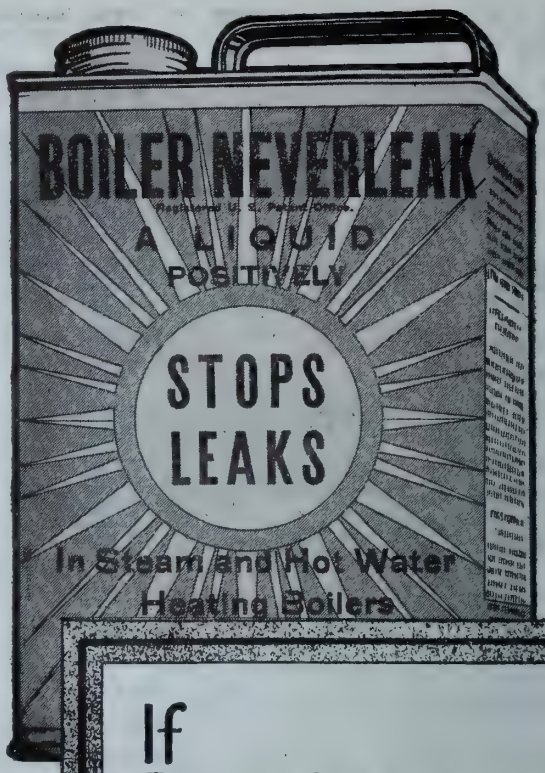
Toronto	Calgary
Hamilton	Lethbridge
Kitchener	Edmonton
London	Vancouver
North Bay	Victoria



If BOILER NEVERLEAK Doesn't Stop it Nothing Else Will-

Tests after tests have proved, beyond any question, the absolute superiority of Boiler Neverleak in stopping leaks in steam and hot-water heating boilers. Fitters now realize that if Boiler Neverleak doesn't stop the leak, nothing else will!

Our $1,000,000 Guarantee is the strongest assurance we can give you that Boiler Neverleak will make good. If it doesn't do all and more than we claim for it, your money will be refunded or the goods replaced, free, at your option. You take absolutely no risk, nor does your customer.

Give Boiler Neverleak a trial. Make $50.00 in one hour's time. Write for full particulars or consult your jobber.

"Neverleak Specialists for 25 Years"

$1,000,000.00 GUARANTEE BEHIND EVERY SALE!

Buffalo Specialty Company

352 Ellicott St., Buffalo, N.Y

Sanitary Engineers—

We manufacture ONLY white metal alloys. Therefore by using our products you get the quality which goes ever with specialization.

LEAD PIPE, TRAPS, BENDS, SHEET,
BLOCK LEAD, WIPING SOLDER

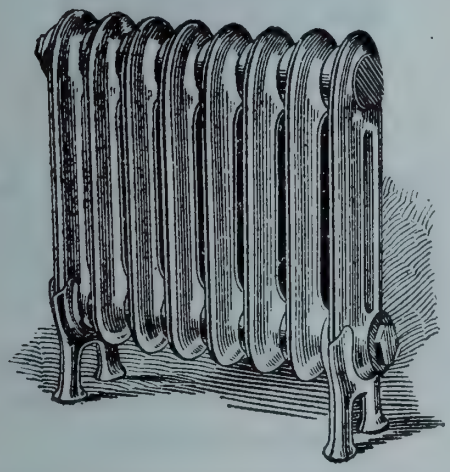
HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG

Place Your Order Now for Press Steel Rads

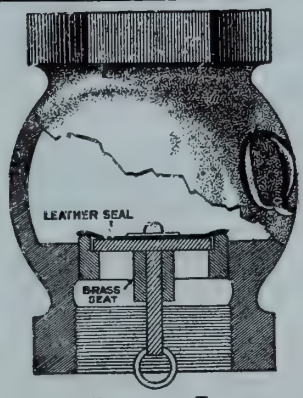
STEAM AND HOT WATER

One size only—and a bargain



Radiators made by American Pressweld Co. of Detroit. Press steel and welded standard steam or water radiators, eight section, 18 inches high, single column, ⅛ inch air vent opening. These are absolutely new and guaranteed perfect. Wholesale price laid down in Canada, $9.50. Must be cleared at once. Write and make an offer.

Salisbury Electric Co., Limited
615 Yonge St., Toronto



This is a "Q" Foot Valve

And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

R. McDOUGALL CO., LTD.
GALT., CANADA

The K-T FOUNDRY

Trade K-T Mark

GALT ONT.

STANDARD

Soil Pipes and Fittings are of pleasing design and good finish. They look good and they **are good**

SPECIALS

Range Boiler Stands are adjustable to 30-35-40 gallon boilers, and you can connect directly under the boiler. Inexpensive but flawless.

Your jobber can supply our goods--if you ask for them

Eliminates Loss

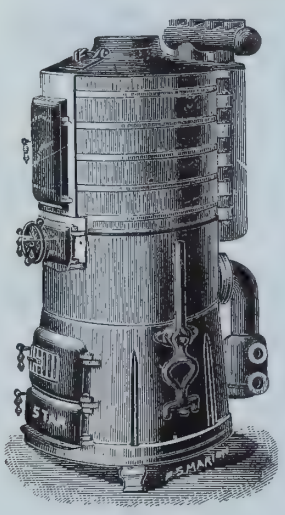
Allpriser Service

Mistakes cost money, and mistakes are "the unexpected that always happens." Mistakes are avoidable if you use Allpriser Service. An indispensable service to the trade that eliminates loss, reduces overhead and gives security from mistakes in prices.

Allpriser Service consists of a flexible, leather-bound book 7 x 9, of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest changes. Allpriser Service is only $25.00 annually.

Kenneth B. Allison, 668 Yonge Street, Toronto

Thousands of Star Boilers in Use requiring repair Parts



It will be a long time before folks forget the coal troubles of the last few seasons.

The principal feature of the Star Boiler is that no other round hot water boiler has any coal-saving improvement not embodied in the "Star."

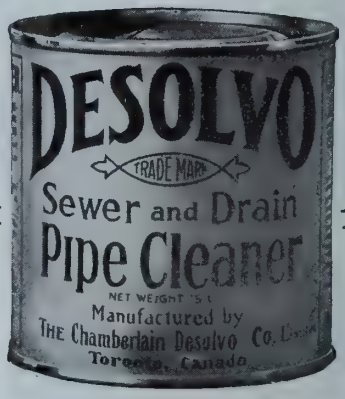
Then, too, while boiler installation and repair time is here, why not stock up with Star parts, for which O. Belanger has taken over the rights and is now making?

Many thousands of Star Boilers are in use requiring these repair parts hitherto unobtainable.

Write to us at once in time to catch the season's business.

We guarantee prompt deliveries.

O. BELANGER, REG'D.
Amherst Street
MONTREAL



Every Home Needs It

Desolvo makes good for the dealer because every home needs it, in quantities and often. It is actually consumed so that you have a continuous and growing demand.

Nothing compares with it for cleaning clogged and frozen pipes. It mixes with cold water creating heat in the process.

Order from Your Jobber

The Chamberlain Desolvo Co., Limited
110 Church St., Toronto
General Offices - - Pittsburg, Pa.
Eastern Canada Representatives: RICHARDSON & BUREAU,
55 St. Francis Xavier St., Montreal, Que.
Ontario and Western Representative: L. F. MAYNE.
99 Quebec St., Toronto.

WROUGHT PIPE

BLACK and GALVANIZED SIZES, 1/8 IN. TO 4 IN.

All our pipe thoroughly inspected tested to 600 lbs. hydraulic pressure and branded.

All Sizes of NIPPLES (Black and Galvanized)

Ask your jobber for CT *Brand of Wrought Pipe*

CANADIAN TUBE & IRON CO., LIMITED, MONTREAL
Works: Lachine, Can.

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Is a Straight Line the *Shortest Distance* between two points?

IT'S a strange thing to have a man admit that a thing is true—and then **act** contrary to it!

Everybody knows that "X" Boiler Liquid is the shortest route to a quick job and a good profit. Yet there are still a few fitters who on **every** leaking or cracked boiler job will go the roundabout way—dismantling, waiting for new parts, replacing—take two days for a half an hour job with "X" Boiler Liquid!

These men ought to fall in line with the 28,000 others who have adopted the scientific "X" Liquid process.

They'll soon learn that they can't afford to be without it. In an emergency it is a comfort-maker and often a life-saver to the customer. And always a profit-maker to the fitter.

When the shop is jammed full of big jobs **waiting** to be done, it's a satisfaction to do the leaking or cracked boiler jobs so quickly. Often the helper alone can do the work. "X" is simply poured into the boiler. It works automatically—finding all the leaks or cracks and making **permanent** repairs that stand 2,000 pounds pressure.

Eliminates Rust and Scale

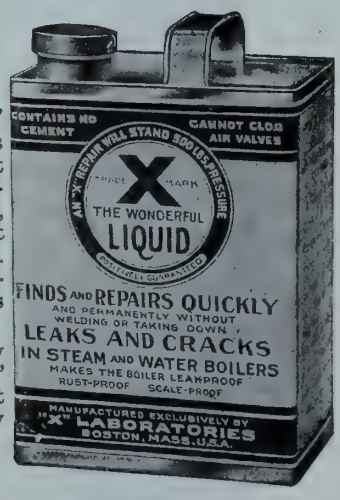
SOME boilers are so clogged with Rust and Scale that they are working at only about 60% of their efficiency. "X" can be sold to customers for **eliminating** this Rust and Scale—and **preventing** new Rust and Scale from forming. This improves the boiler and saves coal.

Get the Genuine!

THE genuine "X" Boiler Liquid is often imitated but it can never be **duplicated.** It is a scientific, patented process—not a cement or meal. Imitations cause **foaming**—"X" **prevents** foaming.

For your own safety get the genuine "X" Boiler Liquid. See that the big "X" is on every can.

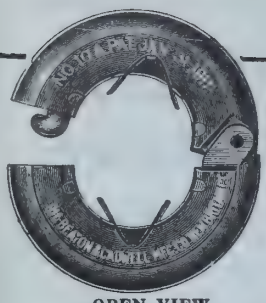
Your jobber sells it.



"X" LABORATORIES

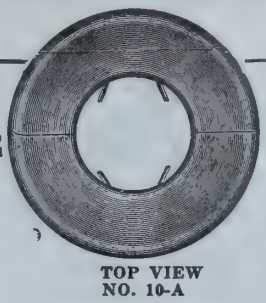
25 W. 45th St., New York City

Boston **San Francisco**



OPEN VIEW NO. 10-A

The CEILING PLATE that's better



TOP VIEW NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾" WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

Gem No. 4.

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.

Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.

New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

GENUINE

ARMSTRONG STOCKS and DIES

Hinged PipeVises *Pipe Cutters*

Pipe Threading Machines

—MANUFACTURED BY—

THE ARMSTRONG MFG. Company

317 Knowlton Street BRIDGEPORT, CONN

248 Canal Street NEW YORK

"BC" COMBINATION COLD ROLLED STEEL Floor and Ceiling PLATES

Carried by the leading supply houses

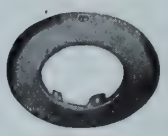
No. 1

Puts just the right finish on that heating job

Send for catalog of complete line of "B. & C." goods.

No 1 Valve

Stock carried by our Canadian Representative W. H. CUNNINGHAM & CO. 183 Church Street Toronto, Ont.



The Beaton & Corbin Mfg., Co. Southington, Conn., U.S.A. The Old Original Company

"HAUSE" PIPE JOINT CEMENT

For steam, water, air, oil, gas, gaskets, etc. The cement that cements. Sets like gum. Allows no leaks.

The Great Value of "HAUSE PIPE JOINT CEMENT" lies in its peculiar chemical properties which permits of its hardening and expanding after the joints are made up. In making up joints it has the same effect as a lubricant on the best graphite, and while the joints may be made and broken readily, a perfectly tight joint is maintained at all times. Comes in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans, 100-lb. barrels. Manufactured in ready mixed and powder form. Ask your jobber for prices, or write us direct.

Made in Omaha, Neb., U.S.A.,

Manufactured in Ready Mixed and Powder Form.

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CRANE FLANGED FITTINGS

CRANE

LIMITED

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BRANCHES: Toronto, Winnipeg, Vancouver.

SALES OFFICES: Halifax, Quebec, Ottawa, Calgary.

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WE HAVE THE BOOKS YOU WANT.

Books Bought. Best Prices Given.

W. & G. FOYLE, Ltd.,

121-125, Charing Cross Road, London, England.

CONDENSED ADVERTISEMENT

FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

WHEN ANSWERING ADVERTISEMENTS KINDLY MENTION NAME OF THIS PAPER

WE CARRY A FULL LINE OF

BOILERS, RADIATORS, WARM AIR FURNACES AND REGISTERS

HAMILTON STOVE AND HEATER COMPANY, LIMITED, HAMILTON, CANADA

Pipe Fittings

Made in Canada

The Brand that has the Quality

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

CAST IRON FITTINGS

With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS

With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

There Are Lots of Gate Valves

Advertised and Sold

but not all of them possess that neat appearance, combined with strength and stability, which characterizes

KERR IRON BODY GATE VALVES

Specify KERR'S (KEYSTONE) Iron Body Gate Valves on your next order, and let us prove what we claim for them.
Our Catalogue No. 5 tells all about them. It is yours for the asking. Write us to-day.
Approved by the Fire Underwriters' Association, and Registered by Boiler Inspection Departments of Ontario, Saskatchewan and Alberta.

THE KERR ENGINE COMPANY, LIMITED - Walkerville, Ontario

The VitrO Combination

Good Appearance

Plus Guaranteed Service

The VitrO is an All-One-piece tank. The absence of seams and joints renders it absolutely leak-proof.

The white enamel finish makes it a decidedly attractive fixture in the modern bath-room.

The VitrO oak and mahogany combinations are equally attractive.

This variety in design makes it easy to have this tank installed in either the modern or old-fashioned home.

WE guarantee that should a VitrO Tank at any time prove defective through either material or workmanship, a new one will be given to the plumber by the jobber from whom he purchased it. In no case will credit be given to the jobber until the defective tank is returned and examined, and when a tank is returned same must be complete with all fittings; otherwise, credit will be given based only on the value of the goods returned.

Exception

This guarantee does not apply to defects caused by carelessness or abusive wear and practice.

Note

A VitrO Tank must not be returned because of a defective fitting or cover. A defective fitting or cover will be replaced at once; however, the defective one must be returned for examination.

When tanks are broken in transit, claim must be made against the Railroad Company.

Write for Descriptive Literature

Galt Brass Company

Limited

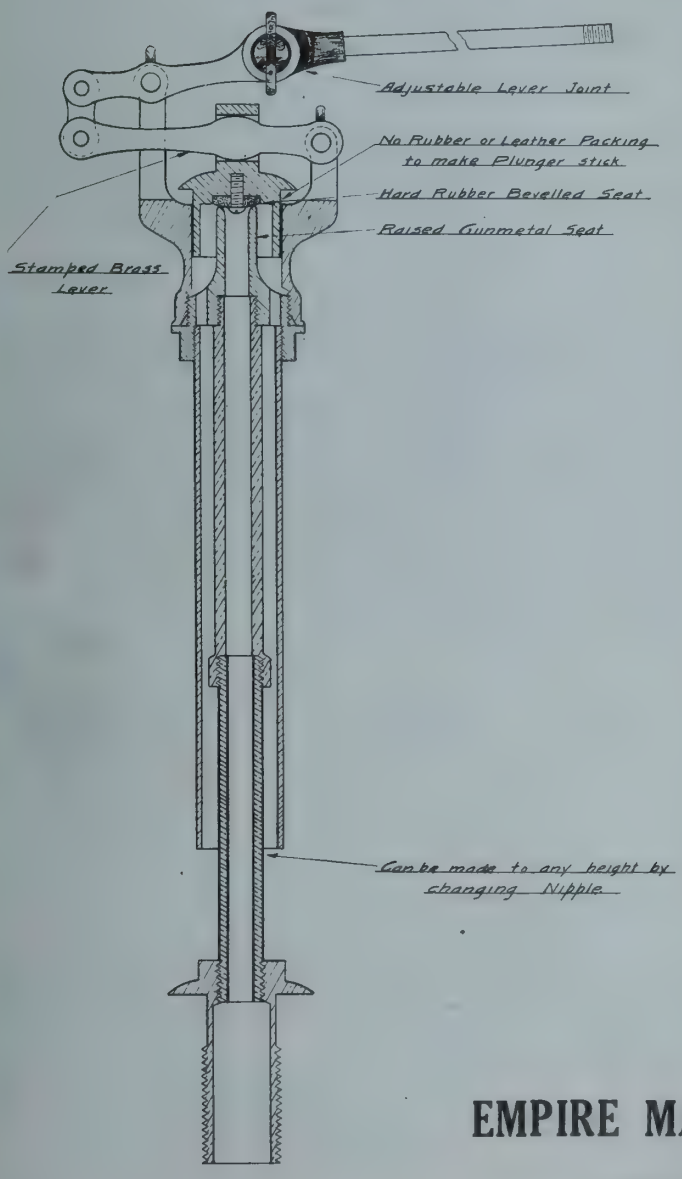
Galt, Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, APRIL 1, 1920 No. 7

Introducing the New Empire "Victory" Ball Cock


Adjustable Lever Joint
No Rubber or Leather Packing to make Plunger stick
Hard Rubber Bevelled Seat
Raised Gunmetal Seat
Stamped Brass Lever
Can be made to any height by changing Nipple

THERE are many points in the design and construction of this new Empire fixture that make it the most efficient ever put on the market.

An admirable feature is the adjustable lever joint which allows for the quick adjustment of the float rod to meet any requirement of height or depth.

The plunger, unencumbered by rubber or leather packing, operates freely and smoothly, thus ensuring instant action.

Note the hard rubber bevelled seat, the raised gun-metal seat and the stamped brass levers.

The "Victory" Ball Cock can be adjusted to any size tank by means of different length nipples.

The best class of workmanship and the finest materials are used in its construction and every part of it is thoroughly tested before leaving our factory backed by the Empire guarantee of efficiency.

Our facilities are at your disposal. Write for our catalogue—specify your needs—we can be of infinite service to sanitary and heating engineers. Prompt delivery guaranteed.

Canadian Money
Canadian Made
Should stay in Canada
For Canadian Trade.

EMPIRE MANUFACTURING COMPANY

LIMITED

LONDON AND TORONTO, CANADA

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

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General Offices and Factory: Amherst, Nova Scotia

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MANITOBA and NORTHWEST:
E. B. Plewes, 120 Lombard St., Winnipeg

TINKER TOM'S TALKS.

Ventilators

To remove foul air—
To supply fresh air!

A man may live without food for a month, without water for a week—but without air only a few moments.

So—why not have

PLENTY OF FRESH AIR?

Air is one of the few necessities of life which is still cheap and plentiful.

Ventilators are universally made of Galvanized Sheets and for this work the material must be FLAT, TOUGH, WELL COATED—which is only another way of saying—

PREMIER GALVANIZED SHEETS.

PROMINENT CANADIAN VENTILATOR MAKERS:

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B. F. Sturtevant Co. of Canada, Ltd.	Galt
A. B. Ormsby Co., Ltd.	Toronto, Montreal
Pedlar People, Ltd.	Oshawa, Montreal, Toronto
Canadian Blower and Forge Co., Ltd.	Kitchener
Sheldons, Limited	Galt and Montreal

DOMINION SHEET METAL CORP. LTD
MADE IN PREMIER CANADA
HAMILTON, CANADA.

SANITARY ENGINEER, April 1, 1920, Vol. XIV., No. 7. Published 1st and 15th of every month at 143-153 University Ave., Toronto, by the MacLean Publishing Co., Ltd. Yearly subscription price, Canada, $1.00; United States, $1.50; Great Britain and the Colonies, 4s. 6d.; elsewhere, $2.00. Entered as second-class matter at the Post Office, Ottawa. Entered as second-class matter July 1st, 1912, at the Post Office at Buffalo under the Act of March 3rd, 1879.

K K

Fills a Recognized Requirement

What it does and why it sells so well

K. K. is a powdered, chemical compound scientifically prepared. Its purpose is to remove the objectionable stains of uric acid, etc., from the bowls of closets, traps and urinals that are made of Vitreous ware only. K. K. will keep the bowl clean and sanitary with no unpleasant labor. It will not injure bowls, pipes or plumbing connection. K. K. is free from odor, dirt, and gives off no fumes.

Its marked success and ready sale are due to its efficiency and the need of a prompt, easily applied substance to do this work without unpleasant labor for the housekeeper.

Chamberlain Desolvo Co.,
Limited
110 Church St., Toronto, Ont.

Eastern Canada Representatives:
RICHARDSON & BUREAU
55 St. Francis Xavier St., Montreal, Quebec
Ontario and Western Representative:
L. F. MAYNE
99 Quebec St., Toronto

Specifications cannot command but—

WHEN the Dunham Radiator Trap is specified there is only one legitimate reason why you may hesitate to use it; its extra cost.

The measure of value of the Dunham Radiator Trap is not its first cost, but its perfect service, long life and absence of repair charges. Without superior merit, the Dunham Radiator Trap could not continue to be specified and used regardless of its extra cost. Use it always: it has been standard since 1903.

The first thermostic disc radiator trap

C. A. DUNHAM COMPANY, LTD.

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Halifax Vancouver Winnipeg
Ottawa Montreal Calgary

London: 64 Regent House
Regent Street, W. 1

The DUNHAM HEATING SERVICE

The Home of "DIAMOND" Fittings

FITTINGS LIMITED

OSHAWA, CANADA

THE CANADIAN SOCIETY OF DOMESTIC SANITARY AND HEATING ENGINEERS

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Secretary-Treasurer
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Sanitary and Heating Engineers

Attention!

NINTH ANNUAL MEETING

OF

The Ontario Society of Domestic Sanitary and Heating Engineers

will be held in

Toronto

22 COLLEGE STREET

Thursday, Friday, Saturday, April 8, 9 & 10, 1920

Provincial Plumbing and Heating Regulations,

Apprenticeship Regulations,

Improved Accounting and Bookkeeping Systems, and

Bigger Business Methods

are a few of the features to be presented on this occasion.

Every plumbing and heating operator in Ontario is invited to attend this convention, when William J. Woolley, manager of the Trade Extension Bureau of the Plumbing and Heating Industry in the United States, will assist us to place the plumbing and heating industry on the map, in Ontario.

This is the opportunity of the craft in Ontario to get together and secure for themselves suitable trade conditions through a united organization. Join the Ontario Society of Domestic Sanitary and Heating Engineers now, by sending your application to Garrett F. Frankland, Secretary, Room 303, 22 College Street, Toronto, Ontario.

Beaver Tools

Pipe Cutters and Die Stocks

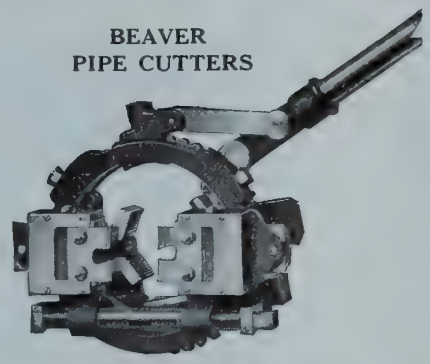
Showing burred edge of pipe cut with ordinary wheel cutter.

These square-end pipe cutters meet the demand for a real pipe cutter and have in the last five years won over 100,000 users. They come in four styles and sizes as follows:

1	5	10	15
⅛ to 1	½ to 2	2½ to 4	2½ to 6

Cuts pipe quickly without a burr, knives feed automatically, no hand feeding necessary.

BEAVER PIPE CUTTERS



Showing the clean cut edge of pipe when Beaver cutter is used. Note rings cut from pipe. No burred edge to reduce the opening.

BEAVER DIE STOCKS

They're the easy-working die stocks—efficient, quick working. The dies are narrow and receding, moving outward as the thread advances. 2-inch pipe is threaded easily with one hand. 4 to 12 inch pipe threaded by one man. Beaver dies will thread several sizes of pipe without changes.

Phillips High-Speed Drilling Machine.

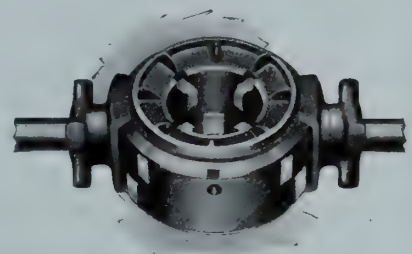
PHILLIPS SPRING HAMMERS, DRILLING MACHINE.

(Shown above) is the first and original high-speed hand-drilling machine—built to stand up to the wear and tear and hard knocks of every-day drilling.

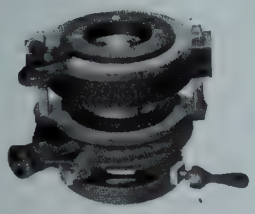
No. 6 Beaverette. Sizes ¼ to ¾ inch in changing of dies or loose bushings.

OHIO DIE STOCK (non-receding) —the "Improved Ohio," made in the following sizes—right or left—

No. 53—¼ to 1¼ inches.
No. 54—1 to 2 inches.
No. 55—½ to 2 inches.
No. 56—1¾ to 3 inches.
No. 57—1 to 3 inches.
No. 58—2¼ to 4 inches.



Improved Ohio, ½ to 2 inches

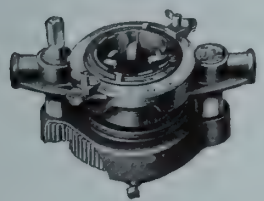


No. 25 Plain
No. 26 Ratchet
1 to 2 inch.

BEAVER JUNIOR DIE STOCKS
No. 3

(Ratchet), right or left. Made to accommodate six heads, ⅛, ¼, ⅜, ½, ¾, 1 inch. May be bought separately or in complete set.

Beaver, Jr., Ratchet, ⅛ to 1 inch.



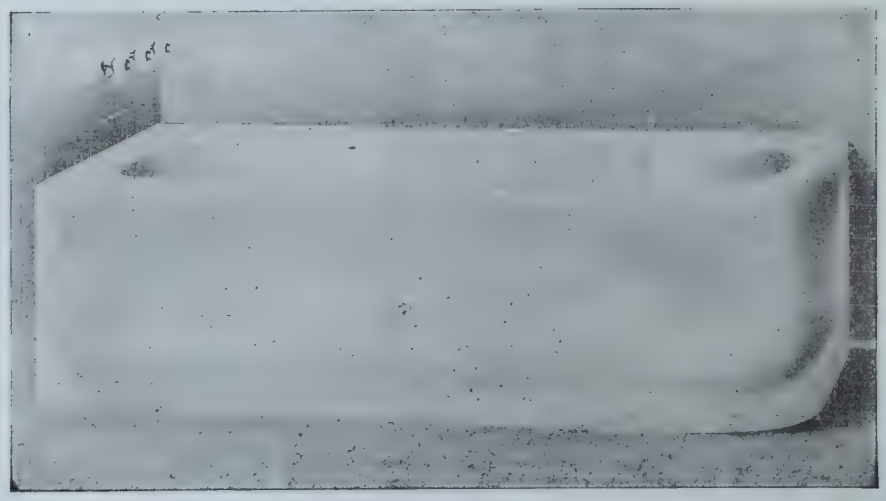
Geared
No. 41—2½ to 4 inch.
No. 61—2½ to 6 inch.
No. 80—4½ to 8 inch.
No. 90—9 to 12 inch.

The Borden-Canadian Co.

110 CHURCH ST. TORONTO

"Standard"
"Perfection" Built-in Baths

Made in One Piece Enamelled All Over



These Baths represent the last word in design and finish, and are made to build into Right or Left Hand Corner or into a Recess.

The "Perfection" Built-in-Bath is only 17½ inches high, therefore convenient. It builds into walls and floors, the absence of all dust-collecting cracks and corners meaning bathroom sanitation.

Made in 5 and 5½ foot sizes.

Illustrations on request.

Write the nearest dealer

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ontario

Toronto Store:
55-59 Richmond Street East

Winnipeg Showrooms:
76 Lombard Street

Hamilton Store:
20-28 Jackson Street West

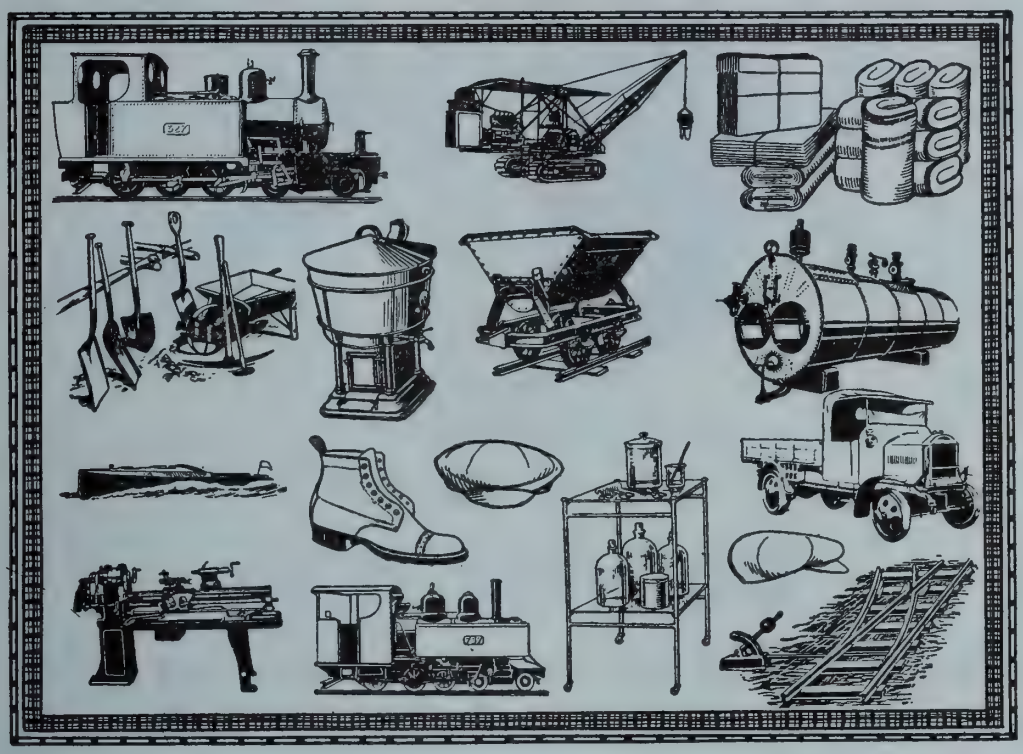
Montreal:
358 Beaver Hall Square

Calgary:
325 Eighth Avenue West

Vancouver:
847 Beatty Street

"MADE IN CANADA"

MINISTRY of G R MUNITIONS



THE DISPOSAL BOARD HAVE

STOCKS

LYING IN THE UNITED KINGDOM
AND
AVAILABLE FOR EXPORT
OF

ENGINEERING STORES

Ferrous and Non-Ferrous Metals
Plant and Machinery
Steam Engines and Boilers
Factory Stores
Machine Tools
Railway Material
Contractors' Stores
Electrical Instruments and Machinery
Medical Stores
Chemicals and Explosives
Motor Vehicles
Agricultural Machinery
Aircraft
Furniture
Textiles and Clothing
Motor Boats, etc., etc.
Boots and Leather Equipment

Buyers should instruct their representatives in the United Kingdom to communicate with D. B. 8, Canadian Export Department, Ministry of Munitions, Whitehall Place, S.W.

Cable address: "DISPEXPORT, MUNORGIZE, LONDON."

Booster Binx
His First Appearance

Sure as preaching, I am neither a preacher nor a descendant of George Washington, of truth-telling fame.

However, be that as it may, you wise fellers aren't going to catch me in any falsifications, otherwise known in plain English, as just plain "lies." Which fact accounts for my being here and being introduced by my old pal Jim.

You see, it's like this:

Both of us have been having our hand in the making of Burnham Boilers for more years than most folks have buttons (some haven't any, so 'tis said).

Just natural like, therefore, I have been guilty of ever and anon telling somebody the truth about the boilers. Told it so often; and hammered my fist so hard when I did, that first thing you know, everybody from that fresh-alec office boy Ned, up to the big chief himself, was calling me Booster.

Then, for some unknown reason, they added the name Binx. It's been explained to me since that Binx is Swedish for "man-with-hat-on-back-of-head." So I promptly accepted the name, because one could not help but have a profound respect for **one word** that meant seven. It has 3-in-1 oil beaten a mile.

But to get back to this first appearance of mine as an Ad. smith.

You see, having done so much boost talking, the big chief said to me one day, just before the big snow: "Say, Booster, put some of that boiler talk of yours down on paper. Want to use them for Ads."

Most Ads, being mostly a pack of lies, and I being so truthful, wasn't keen at first to have what I wrote associate with such company. After which, thought better of it. So here I am, being introduced first by my pal Jim and afterwards by my own true self.

And now I give you fair warning that herewith and hereafter (both) I am, every so often (maybe oftener), going to say some things on this page.

Furthermore, don't let me catch you reading any of them or our lifelong friendship will be automatically ended.

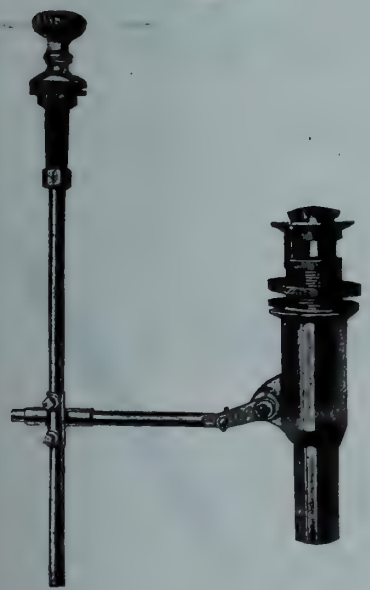
Lord & Burnham Co. Limited of Canada
(Boiler Department)

Royal Bank Bldg., Toronto — Factory: St. Catharines, Ont.

Burnham Cosy Comfort Heat BB

WALLACEBURG QUATURN GOODS

will satisfy the most particular customers and encourage continued purchases. They comply with the most exacting requirements, as in addition to being well constructed and all working parts renewable, the designs are graceful—yet not too elaborate — and with a heavily nickelled finish lend a harmonizing effect to Bath Room and Kitchen.



THE WALLACEBURG BRASS & IRON MANUFACTURING COMPANY, LIMITED

Wallaceburg, Ontario

Toronto	Winnipeg	Montreal
10 Wellington St. E. Phone: Main 2355	Galt Building Phone: Garry 3389	358 Beaver Hall Sq. Phone: Main 7531
Mr. L. N. Vanstone	Moncrieff & Endress, Ltd.	J. R. Devereux & Co.

IT'S A "DAISY"

LONG SERVICE

ABSOLUTE SATISFACTION

Daisy Boiler No. 6

Those selling "Daisy" Hot Water Boilers will find that they are meeting with the needs of the most discriminating customers. The quality of these boilers is reflected partly in their strong construction, as they are built to give long service and the most value for the amount of money expended—altogether absolute satisfaction.

Fifty years on the market is sufficient to testify as to their reliability and eliminates all sales experimenting.

"Daisy" Boilers are supplied in 22 sizes that will handle from 200 to 4,000 feet of radiation.

Their reputation is sufficient to increase your own established and steadily increasing business.

Warden King, Limited

Montreal

BRANCH OFFICE: 136 SIMCOE ST., TORONTO

TRADE B.O.T. MARK

GOOD-BYE—

CANADIAN BRASS GALT ONT

To the unsanitary, unclean, germ-collecting wood strip seat, and let it remain an error of the past. This date we announce to the trade and public in general our decision not to offer this fixture for sale, in fact it is off the market. Our action is supported by Health Boards and physicians throughout the Dominion and we know the Sanitary Engineer is with us in the move, in fact, scores have asked us to eliminate this construction.

A Worthy Substitute

No. 201 Round Seat and Cover, full 1¼" stock in either golden oak or imitation mahogany, fitted with heavy Bar Post Hinges, N.P., having sufficient clearance between the bar and top of bowl to allow cleansing with a rag. It looks better, is better, lasts longer, and above all is sanitary. Wood doweled front and back of the seat opening, straight grained and will not split. Same features apply to Horse Shoe and Blanco Seats.

Yours for efficiency and service

CANADIAN BRASS COMPANY LIMITED

GALT TORONTO

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XIV. TORONTO, APRIL 1, 1920 No. 7

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UNITED STATES—New York, A. R. Lowe, Room 620, 111 Broadway, Telephone Rector 3971; Boston, C. L. Morton, Room 734, Old South Building, Telephone Main 1024; H. A. Maguire, Room 1402, Lytton Bldg., 14 E. Jackson Street, Chicago, Phone Harrison 9133.

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Quality and Service For The Plumber

This is what a C.M.C. bath and toilet looks like

Every job finished correctly is a reputation that will mean a stone in a solid foundation for building up an established trade. In doing good work the efficient plumber must feel confident in his materials, which is essential and appreciated by all competent employees.

We manufacture goods that will meet with your highest expectations and in our line of plumbing and metal supplies is a varied assortment which appeals to the most discriminating customers.

Our 35 years of an established trade during which time C.M.C. products have stood the test, is a guarantee of satisfaction and dealers have appreciated our unusual facilities for *prompt shipments.*

These facts will no doubt convince you of the quality and service offered.

Catalogue "A" sent free on request.

C.M.C.
THE MARK OF QUALITY

The CANADA METAL Co., Limited
TORONTO
HAMILTON MONTREAL WINNIPEG VANCOUVER

C.M.C.
THE MARK OF QUALITY

HOW TO MEET the Labor Shortage

A Method Now Being Successfully Used by Plumbers and Steamfitters

IRON CEMENT

Repairs Large Leaks

A metallic paste for sealing holes too large to be bridged by a liquid; hardens quickly, forming a permanent metallic repair. Used with Boiler Se-Ment-Ol (which seals any remaining crevices or small leaks) the result is an absolutely leak-proof repair.

BOILER
SE-MENT-OL
REG. U.S. PAT. OFF.
1 QT. U.S. STANDARD 5/6 QT. IMPERIAL MEAS.
NORWESCO
The Chemically Correct Line
TRADE MARK REG. U.S. PAT. OFF.
REPAIRS LEAKS IN HEATING SYSTEMS QUICKLY AND PERMANENTLY
FINDS THE LEAK AND FIXES IT

Now that the big shortage of labor has compelled plumbers and steamfitters to do more work with a smaller working force, new time-saving methods are being used everywhere.

Now, for example, instead of wasting valuable time searching for the leaks that develop in new installations, and tearing down the heating system to repair these leaks, leading plumbers and steamfitters simply add the necessary quantity of BOILER SE-MENT-OL to the water after firing up and cleaning out the boiler—just exactly as you have been applying it in old, leaking boilers.

BOILER SE-MENT-OL finds **all** leaks in the heating system **quickly**—repairs them **surely** and **permanently,** thus saving you hours of time and eliminating needless expense. Causes no foaming and leaves no disagreeable odor.

Sold everywhere in handy cone-topped cans that reach most awkward places without wastage or spilling.

If you are one of the few plumbers or steamfitters who has not used BOILER SE-MENT-OL, send coupon below for profitable information.

The Northwestern Chemical Co.

1804 State St., Marietta, Ohio, U.S.A.

Canadian Factory: Montreal

BOILER SE-MENT-OL

WRITE TO-DAY

The Northwestern Chemical Co.,
1804 State St., Marietta, Ohio.
Gentlemen—Please send me your special discounts and the name of the nearest jobber who sells Boiler Se-Ment-Ol.

Name .....

Address .....

Established 1907 Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO, APRIL 1, 1920 No. 7

Plumbing Repairs Will Be Cash

Ten Brantford Firms Co-operate in Putting Plumbing Repairs on a Cash Basis—Result of Co-operation

IN THE olden days it was said that competition was the life of trade. The more modern saying is that co-operative competition is the life of trade. At any rate, ten Brantford, Ont., firms apparently believed in the modern version, for they have joined together in a co-operative account collecting plan, which is outlined in the accompanying reproduction of their newspaper announcement. This advertisement appeared in large space in Brantford newspapers, advising the public that owing to the abnormal conditions which have developed within the last few years the firms named have found it necessary to endeavor to put the repair business as nearly on a cash basis as possible.

Why It Is Necessary

Three splendid reasons are given in the advertisement: First—"Because we have to pay cash for wages every Saturday noon."

Second—"Because we have to pay for our goods in ten days if we want the best prices."

Third — "Because the high cost of labor and material keeps too much money tied up in our books under the old system of indefinite credit."

How They Propose to Do It

The advertisement goes on to explain how the plan will be worked out as follows:

"In order to accomplish this with the least expense and to save our customers the inconvenience of coming down town to pay the bill we will engage one man to make collection for all of us.

"Accounts will be rendered and sent to the customer as soon as the work is completed, and the collector will call for the amount a day or two later."

A diplomatic explanation precedes the signatures of the ten firms working under the new plan. It follows:

"We wish to assure our customers that their business is appreciated—and that positively no offense is intended in asking for payment when the work is completed. We would also appreciate it very much if customers will be prepared for the collector when he calls."

Following this explanation are the names of ten firms as shown in the reproduction of the advertisement.

The advertisement is a most effective one, explaining the plan in a nice practical manner which would not give offense to customers. The result of the plan will be watched with interest.

PLUMBING REPAIRS

Will Be Cash!

OWING to the abnormal conditions which have developed within the last few years, we, the undersigned firms engaged in the plumbing and heating business, have found it necessary to endeavor to put our repair business, as nearly on a cash basis as possible.

Why It is Necessary

Because we have to pay cash for wages every Saturday noon.

• • •

Because we have to pay for our goods in ten days if we want the best price.

• • •

Because the high cost of labor and material keeps too much money tied up in our books under the old system of indefinite credit.

How We Propose to Do it

In order to accomplish this with the least expense and to save our customers the inconvenience of coming down town to pay the bill we will engage one man to make collections for all of us.

• • •

Accounts will be rendered and sent to the customer as soon as the work is completed, and the collector will call for the amount a day or two later.

We wish to assure our customers that their business is appreciated—and that positively no offense is intended in asking for payment when the work is completed. We would also appreciate it very much if customers will be prepared for the collector when he calls.

T. J. MINNES & CO.
COWANS
W. TIPPER & SON
H. W. WITTON
H. E. WHITE
ANGUISH & WHITFIELD
W. L. ARMOUR
BRANTFORD PLUMBING & HEATING CO.
CHAS. TAYLOR & CO.
R. H. BALLANTYNE

Advertisement by Brantford, Ont., firms appearing in Brantford papers.

Part of display room of Brousseau & Frere, Quebec, Que.

Right on the Job---Get Business

Quebec Firm of Brousseau & Frere Began With Two Hundred Dollars and Determination to Succeed—Last Year Did Over One Hundred Thousand Annual Business

THE age of the old-time store has long since gone into discard. The "visitor" may come in to speak in friendly terms with the proprietor, but he does not have the old-time opportunity of recalling the yarns of his youthful days, relieving himself betimes of an over accumulation of juicy nectars into a remote nail keg; he makes his friendly call, rather, in a modern and well-appointed office, where the owner, surrounded by modern equipment, is able and glad to discuss with him the problems of a go-forward, busy world.

Gaudiose Brousseau and his brother, Edgar, have passed down the various avenues of business growth, from the very smallest of beginnings to the time when each can and does occupy his own well-appointed office, each engage in his own chosen department affairs, and the direction of which activities are carried forward with smoothness and ultimate profit. As with the great business institutions of to-day a proper division of duties makes for efficiency, and the development and forward strides made by Brousseau and Frere, located for the past eighteen years at 320-322 Rue St. Paul, Palais, Quebec, is a tribute, among other things, to the wisdom of such division of duties.

Initial Capital $200

In the year 1902 the Brousseau Freres, talking matters over, decided on the business venture which has developed so greatly. At that time money was not easily obtainable, but the hope which springs eternal in a real man's breast prevailed, and with the $200 cash that had been saved the present premises—rather a very small portion of the property, was fitted up for the purpose of retailing hardware, gas fitting, tinsmithing, plumbing, etc. "One hundred and fifty dollars of that amount," said Mr. E. G. Brousseau to SANITARY ENGINEER, "was spent for altering the old house which he secured at 320 St. Paul Street, and the balance was spent for stock. When we had the store opened we were in debt $50, and even that was quite an amount in those days.

"The first store—opened on the ground floor of the old house, was a small affair, in fact so small that when the stove and the necessary stove pipe for carrying off the smoke were in place, and the small stock was installed, there was not an inch of waste room. The size of this store was 20 by 20 feet.

"To accommodate the goods we used old cigar boxes, and these were sampled the best we could, in those days. Above, we had a workshop 12 by 18 feet, and this answered us very well until we had a shop staff of twelve men. Later, this was vacated that a proper fitter's shop might be afforded to give room for the larger and more important work which was contracted for and where new machinery could be installed."

Important Mile Posts

With the modest beginning just described the first year in business was found to reveal a turnover of $6,000. That was eighteen years ago, and while not a large aggregate of sales were so represented, that amount was more, in

those days of beginning, than when such milestones had been passed. The second year saw a relatively large increase in the turnover, $10,000 worth of business having been transacted. The third year business was excellent, and a momentum had been attained, the sales barometer registering $34,000. This was outdistanced the following year, and relatively large increases came, year after year, until last year more than $100,000 business was done. The year just entered bids fair to outdistance anything yet accomplished.

Just how much of this progress is maintained, and records broken, cannot better be illustrated than by repeating the remark of Mr. E. G. Brousseau: "I am right on the job, when I learn of a contract, until we get it."

Go, Talk It Over

This was aptly illustrated when he recalled a recent occasion on which it appeared certain they had lost out on a contract for a heating job, located some distance from Quebec. Tenders had been called for, and, among others, the firm had put in a bid. In due time, word was received that the contract had been let. "I was disappointed, and took the next train to see the party," said Mr. Brousseau. "After I had reached the nearest station I had to take the stage, and when I got to the place, I had a long talk with the man who wanted the work done. 'Yes, so-and-so has the contract,' he said. 'Did he see the plans?' I asked. 'No, but he is coming down here.'

"I then went into the matter more fully, and finally convinced this party that the work could not be done for the price that had been given. In the end, I came away with the contract, and, strange to say, when I got back to the station the next day, who should I meet but the man who thought he had the contract. I knew him, and explained the whole matter to him, outlining how he could not have done the work for the bid he had put in. If it is a big job that is to be let, I get right out after it myself."

"Another thing; we always make a plan for all the work we do, so that we know every fitting that is required." The element of "chance" is thus eliminated, and in contract work particularly, this is the only plan to follow. Of course, Mr. Brousseau has theoretical, as well as practical training, having qualified many years ago in mechanical drawing, and taken his standing. This proved to be the very best of training, in that he was able to apply, as he studied, the very plans on which he was, from month to month, working. In the earlier days, when he had no foreman in his shop, he was able to do all this work himself; now, when he has foremen, he can continue to check over their work, and the element of chance and haphazard may therefore be eliminated.

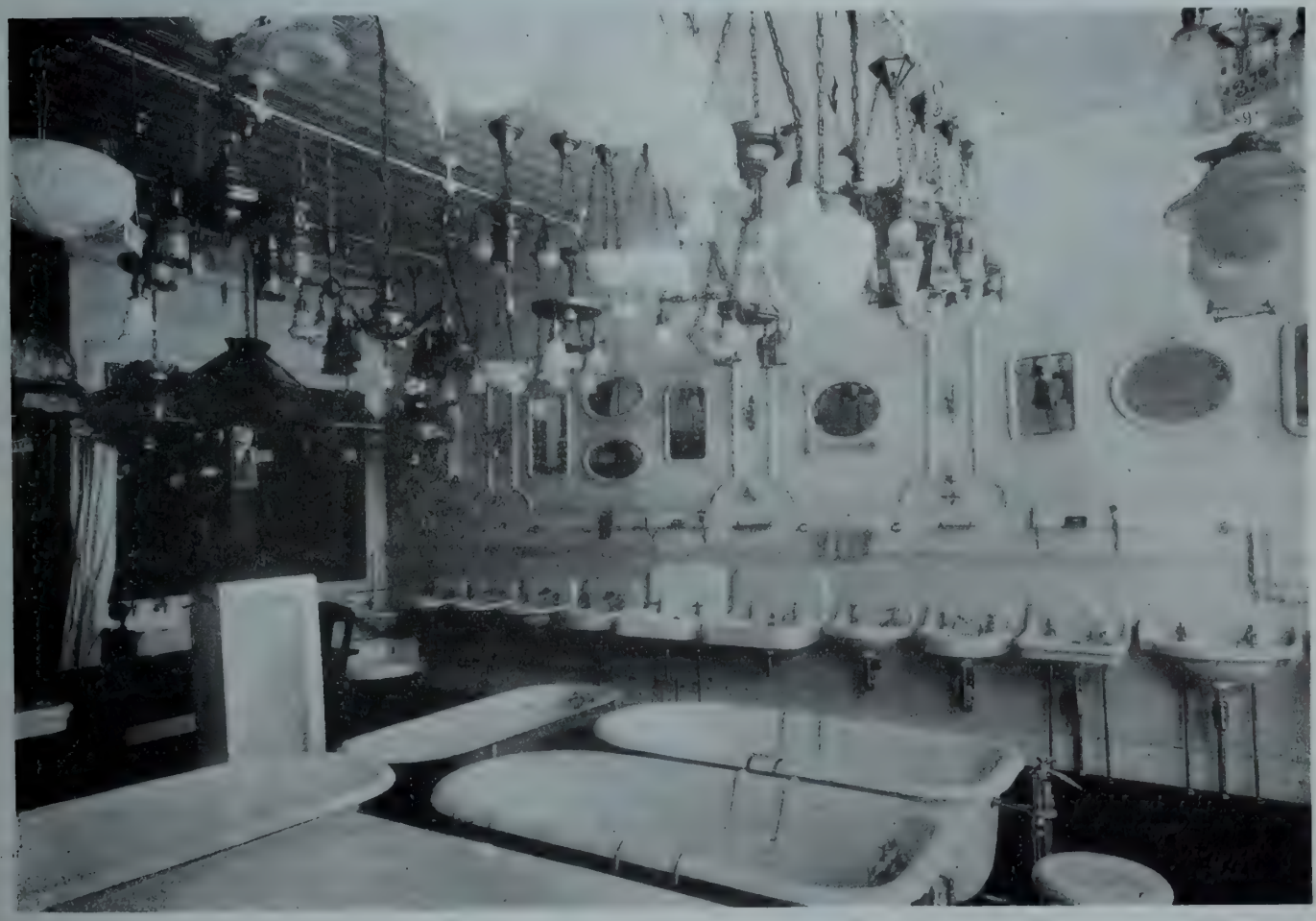
A New Development

Recently—to be explicit, during 1919, the heating, plumbing and electrical departments, having outgrown the crowded quarters into which they had so long been squeezed, were provided a new abode, and this was made possible by the acquirement of what had, for many years, served as a bar-room. It adjoined the Brousseau store, and was thus ideally located for the new department it had been decided to create, or rather expand. Tearing the old fixtures out of this place, it was thoroughly renovated, a new hardwood floor put in, and metal ceiling and walls, together with a patent "metile" wainscoting, the whole effect, when tinted, making a decidedly bright and suitable display room of about 20 by 20 feet, with additional room for three offices, one of these general, and two private.

The new display store was occupied in the early summer of 1919. Sales have increased, assuring the firm that does pay to show goods in so attractive a manner as to almost decide the buyer to make a purchase. This has many times been proven, since the opening of the new department.

All Fixtures Connected

It will be noted, from the accompanying photographs, that a most varied and excellent showing of electrical fixtures is carried in stock for immediate sale. As a matter of fact, in all, there are about



Another view in display rooms of Brousseau & Frere, Quebec, Que.

125 samples. These are suspended from regular electric wire conduits. That the effect to be secured from a given fixture may be indicated to the prospective buyer, a switchboard with ten controls or separate switches, and a master switch at the top, affords salesmen the required means of fully outlining the advantages, through practical demonstration, of a given fixture.

Fifteen styles of electric domes are shown—a good variety indeed. From the plainest wall bracket, to the most elaborate dome for living room or dining room, prices run all the way from $2 to $100 each.

All fixtures are ticketed, and marked in plain figures. For instance, fixtures, with glassware, are priced according to the pattern of shade desired. Extra glassware is carried in stock, and may be bought separately if desired. This surplus stock is carried upstairs—above the hardware department. Six rows are suspended from the ceiling, and the effects are very excellent, particularly so at night. All fixtures are sold wired, but they are not installed unless an extra charge is made. That the buyer may be satisfied in the kind of glassware wanted, different shades are used, and on a given fixture quoted accordingly.

Particular People May Choose

The showing of plumbing fixtures, as is so clearly indicated in the accompanying photos, is such that even the most particular person may make a selection to please his fancy. From the 25 cent tumbler holder to one costing $1.50 or more, sponge baskets from 60 cents to $2.50, nickelled and glass towel bars from 25 cents to $7 each, there is variety, and to spare.

Of cast iron enamelled basins there is a fine display. Fifteen samples are attached to the wall, and fitted with nickelled traps, they show up to the best possible advantage. From $19.75 each to $100, even the King's taste might well be gratified. Baths from $22 each to $200, in five and five-and-a-half foot lengths, are regularly stocked and ready for installation. The display of mirrors is a fine one, 25 designs and sizes being placed on the walls, and ranging from $3.25 to $15 each.

Slop sinks, single and double, wash tubs in all cast enamel, together with a barber's centre lavatory, with latest heavily-plated nickelled trimmings, are also displayed. With artificial palms interspersed here and there, the whole effect is quite as excellent as it could well be made, and facing two full sheets of plate glass, the amount of light secured makes this department very bright and attractive.

Three Good Offices

Special attention was given the matter of office accommodation, a general office for the bookkeeping and stenographic department being immediately to the rear of the display room at the right side, and two private offices—one on either side of the central division. One of these may be utilized for laying out plans, and it is well to have such arrangement; it is always a pleasure not to be cramped for office accommodation. From Mr. Brousseau's private office, he may, at will, communicate by private telephone with any department of the store or shop, eight separate inter-office phones being available. He may also get long-distance connection from here.

It is worthy of note that credits are closely watched, and Mr. Brousseau, while stating that they had necessarily to sustain some losses, the aggregate of these, as related to turnover, is very small.

View of one of the entrances to Brousseau & Frere, Quebec.

Uses Modern Equipment

In the march of twentieth century development, the plumber, steamfitter, and the electrician are carried along on a plane of advancement which would have frightened even our fathers, ten years ago, to say nothing of the maze it would have thrown around our grandfathers.

Recently, a new pipe cutting and threading machine was installed in the Brousseau and Frere workshop. This is of the power type, and cost many hundreds of dollars. It is but an indication of the march of events and this machine is but one of the many labor-saving devices that have been installed here, within the last few years.

Gasoline power, in a sense, has given way to electric, and an agency was recently taken by the firm for a rural lighting plant. Mr. Brousseau stated that they would probably use this plant to light the workshop and run the power cutting and threading machine. Thus, they can make use of the plant, while having it always ready for demonstrating to farmer customers who may be interested in lighting their own country premises.

Generous-sized bins are afforded for the stocking of all kinds and sizes of pipe fittings, while the pipe stock is carried in a separate warehouse. Seven hundred bins are employed to hold the fittings. In all fifty-four men are employed, and these are directed by several foremen.

Hardware Well Displayed

While the store is narrow, the best advantage is taken of the length of the store to show all lines of hardware which are sold. The display windows are narrow, but these are cleaned frequently, and the goods marked in plain figures. Tickets are prepared by one of the salesmen, and they are used generously, on the various goods shown.

Flashlights have grown greatly in demand. These are sold in both a retail and a jobbing way. A full window of these was being shown when the writer called, and some novel features had been worked out by the window dresser, depicting a lighthouse scene to enlist the interest of pedestrians. Electrical goods, as already explained, are carried in the special department before outlined.

Continued on page 21

Saskatchewan Convention Report

Second Annual Convention of Saskatchewan Society of Sanitary and Heating Engineers Held at Saskatoon

THE second annual convention of the Saskatchewan Society of Sanitary and Heating Engineers was opened with an address of welcome by President N. B. Roantree, of Swift Current, Sask., who welcomed the members and touched briefly on the work done durng the past year. Mr. Roantree asked the members not to expect too much from a baby organization scarcely a year old, but he assured them that the child's lungs were good and would soon make it heard and that the members would all be proud to be associated one with the other in the years to come.

When the meeting was called to order the following firms were represented:

Roantree & O'Neil, Swift Current; Hutchinson & Morrison, Swift Current; Northern Plumbing Co., Saskatoon;

N. B. ROANTREE

Swift Current, Sask., retiring President Saskatchewan Society of Sanitary and Heating Engineers.

Nutana Plumbing Co., Saskatoon; H. D. Wheeler, Saskatoon; Beaton & Brady, Saskatoon; R. G. Godfrey, Saskatoon; James Brandon, Saskatoon; Wm. McAdam, Saskatoon; Ross & Parnell, Saskatoon; Cornish & Co., Saskatoon; Wm. Gibson, Saskatoon; A. I. Kracenski, Melfort; W. L. Powers, Rosetown; Alexander & Baird, Moose Jaw; Moose Jaw Hardware Co., Moose Jaw; T. P. Baylis, Moose Jaw; J. E. Yates Co., Brandon, Man.; A. L. McKay, Semans; S. J. Kirkland, Wilkie; A. Rankin, Keppel; D. B. Bryant, Yorkton; Yorkton Plum. & Heat. Co., Yorkton; Paulin & Swayze, Regina; James Adam, Regina; Vagg, Wilson & Co., Regina; Potts & Smith, Regina; Regina Plum. & Heat. Co., Regina.

Secretary-Treasurer's Report

Report of the secretary-treasurer for Engineers:the year ending March 2, 1920:

Mr. President and Members of the Saskatchewan Society of Sanitary and Heating Engineers:

Gentlemen: I hereby submit the following report as to standing and financial condition of this society:

Total membership 29

Receipts and Expenditures

Cash for Dues rec., Feb. 12, 1919.....	$220.00
Cash for Dues since Feb. 12, 1919.....	70.00
	$290.00
Expenditures	$132.00
Balance on hand	158.00
	$290.00
Price Books, 20 books at $12.....	$240.00
Expenditure in connection with same..	119.50
Balance on hand	120.00
	$240.00
Balance Membership	$158.00
Balance Price Books	120.50
Total Cash on hand	$278.50

Amount of mail handled was 250 pieces; 190 out-going 60 having been received.

In conclusion I wish to thank each and every member for their patience and kindness, also the Regina Society for their valuable assistance.

Respectfully submitted,

JAMES ADAM,
Secretary-Treasurer.

It was moved by J. Brandon, seconded by T. J. Alexander, that the secretary-treasurer's report be received and referred to Audit Committee, to be appointed by the president. Carried.

President appointed C. A. Green and C. A. Clarke.

Reading minutes. Minutes of first convention, Feb. 12-13, 1919, were read, and on motion by N. Beaton, seconded by T. Baylis, same were declared adopted as read.

Admitting New Members

There being ten new firms present for admission to membership, they were approved by executive. It was moved by E. P. Paulin, seconded by A. Rankin, that they be received as members of the society. Carried.

Reading correspondence. Moved by T. J. Alexander, seconded by J. Brandon, that correspondence read be received and filed. Carried.

Moved by E. P. Paulin, seconded by T. J. Alexander, that price book balance be transferred to general account. Carried.

Moved by N. Beaton, seconded by J. Brandon, that membership be continued in Dominion Society, Sanitary and Heating Engineers. Carried.

Moved by J. Brandon, seconded by Kracenski, that matter of sending delegate to Dominion S. D. S. & H. Engineers be left with executive. Carried.

Moved by J. Brandon, seconded by T. Baylis, that secretary write Dominion Society as to whether it is customary or possible for each member of our society to receive copy of Dominion Society convention. Carried.

Moved by T. J. Alexander, seconded by A. I. Kracenski, that secretary inform Edmonton Master Plumbers' Association that we will take up the subject of their letter with the wholesalers. Carried.

Nomination of officers.

Moved by C. A. Green, seconded by S. Robertson, that nomination committee be appointed by chairman.

E. P. Paulin, C. A. Clarke, N. Beaton appointed.

Auditors' Report

We, your audit committee, beg to report that we have carefully examined

T. J. ALEXANDER

Moose Jaw, Sask., who as announced in last issue was elected President of Saskatchewan Society of Sanitary and Heating Engineers.

the books of secretary-treasurer and find them correct.

(Signed) C. A. GREEN.
C. A. CLARKE.

Moved by C. A. Green, seconded by C. A. Clarke, that secretary-treasurer's report be adopted and a vote of thanks given to him for the efficient manner in which the books had been handled. Carried.

Nomination Committee

We, your nomination committee, suggest the following names:

President, N. B. Roantree, T. J. Alexander; vice-president, J. Brandon;

secretary-treasurer, T. P. Baylis, J. Adam.

No further nominations, a ballot was taken and resulted in the election of the following officers:

President, T. J. Alexander; vice-president James Brandon; secretary-treasurer, James Adam.

Executive committee, E. P. Paulin, C. A. Green, J. E. Yates, G. Walker, A. L. McKay. Moved by A. I. Kracenski and seconded by R. G. Godfrey that the above constitute the executive committee. Carried.

Moved by J. Brandon, seconded by T. J. Alexander, that secretary-treasurer and E. P. Paulin sign cheques for the ensuing year. Carried.

Moved by E. P. Paulin, seconded by J. Brandon, that executive set amount of remuneration for secretary-treasurer. Carried.

Moose Jaw Invitation Accepted

T. J. Alexander, on behalf of Moose Jaw Society Sanitary and Heating Engineers, invited the association to hold next convention in Moose Jaw. Moved by S. Robertson, seconded by Bob Vagg, that we accept the invitation of Moose Jaw Society. Carried.

Moved by J. E.Yates, seconded by C. A. Clarke, that secretary procure membership certificates. Carried.

Moved by E. P. Palin, seconded by J. E. Yates, that certificates be issued in name of firms represented in our association.

Moved by S. Robertson, seconded by T. J. Alexander, that representatives of wholesale houses be permitted to attend the p. m. session. Motion lost.

Relation of sub-contractor to general contractor. Discussion by T. J. Alexander, S. Robertson, J. Brandon, N. Beaton, C. A. Green. Moved by F. Cornish, seconded by E. P. Paulin, that we take up separate contracts with Provincial Architects' Association, and, if necessary, president and secretary-treasurer attend Provincial Architects' convention and place this subject before that body. Carried.

Address on Business Methods

The address on business methods, pricing and collections, by C. A. Green, proved an interesting address and dealt with overhead expense, which averaged 17 per cent. Leakages, such as material left on work, lost and broken tools, checking invoices, etc. Time and material sheets should be o.k'd by customer or janitor and checked before being sent to customer. Also advised having an up-to-date set of books started by competent accountant. A good discussion followed the address.

Moved by C. A. Green seconded by Mr. Morrison, that the secretary write Dominion Society re Order-in-Council relating to plumbing and heating supplies as necessities of life and calling for persons engaged in that business to make returns of cost and resale prices. Carried.

Construction of Buildings

In his address on the construction of buildings in their relation to the heating contractor, J. E. Yates brought out many important defects in construction and the remedies, and illustrated same on blackboard.

Report Committee on Price Book

The committee recommended that price book be continued and have cost and resale price, and that we engage someone qualified to handle this and have it revised monthly. Moved by Paulin, seconded by Beaton, that report of committee be adopted. Moved by Paulin, seconded by Baylis, that price book remuneration be handled by executive. Moved by Braton, seconded by McAdam, vote of thanks to the members of Regina society for the efficient manner in which they had compiled price book. Carried.

To Affiliate With Retail Merchants' Association

F. E. Raymond, Saskatoon, Sask., on behalf of Retail Merchants' Association, addressed the association on benefits which their association would be to our members if a trade section was formed and affiliated with the Provincial Retail Merchants' Association. Moved by Roantree, seconded by Kracenski that we affiliate with the Retail Merchants' Association as a trade section. Carried.

Contracts and Credits

The address by Mr. N. Beaton on contracts and credits appears elsewhere in this issue of "Sanitary Engineer."

Septic Tanks

The discussion on septic tanks, introduced by E. P. Paulin, created considerable discussion. Remarks by various speakers brought out the facts that while in a good many cases where they had frost trouble, it was because tank or field was not covered, but when thawed and covered they worked o.k.

It was pointed out that tanks should be constructed by competent men and not left to owner who may not have ability to do so. It was moved by Mr. Pauline, seconded by Mr. Parnell, that the association appoint an inspector to work in conjunction with Provincial inspector upon his request and notify department of the association's action.

Mr. Wilson, of Anthes Foundry Co., gave a short talk on septic tank literature his firm was sending to farmers. Mr. Taylor, on behalf of Mr. Whiteford, expressed his regrets at not being able to be present.

Inspection Not Improved

G. G. Taylor, Saskatoon sanitary inspector, delivered an address, bringing out the need of thorough inspection and stating that inspection had not improved much in the past year, particularly in rural districts; also that returned soldiers' vocational school had requested the Saskatoon City Council to place a practical returned man with the sanitary inspector for six months' course, which was done.

Inspections

In his address, T. Watson, Provincial sanitary inspector, dealt with requests from the society and told of the progress which was being made, also that the Government was intending to inspect septic tank installations when weather was favorable and invited the association to send a representative along with them. Remarks by Kracenski re lack of inspection in his district was answered by Mr. Watson who said that there were only 185 permits granted, of which 135 were inspected, and he questioned if there were not double that amount of work done and if permits were not taken out the fault lay with the master plumber.

Wholesale Houses and Methods

The balance of session was devoted to wholesale houses and methods. The subject was introduced by C. A. Green, who refered to reason they thought it necessary to draw out a plan for persons not engaged in the trade, also reason for change of discount. In reply, Mr. Taylor, of Gurney Foundry Co., said it was difficult to say who should get any stated discount. He thought it better to have one discount only and let firms look after their percentage of profit. Their policy was to quote 25 per cent. to outsiders, but they discouraged this practice as much as possible. Uniform price from wholesalers to trade open to all. Remarks along these lines were made by Messrs. McKee, Browne, Hepburn, Woodrow. Mr. Woodrow stated his firm would be glad to have any complaints referred direct to them.

John Stevens, of John Stevens Company, said they had always tried to sell to legitimate trade but often found that they had to sell to hardware and tinsmiths who required pipe, valves, etc. He naturally supposed that if material sold to such firms the plumbing regulations would compel them to engage competent men. Cited Eaton's as a comparison. His company did not care to quote outside trade but when they do they protected the trade as far as possible. Jobbers, as a whole preferred to do business with the trade.

Harry Dart, "The Smooth Guy," said he was pleased to be with the boys and thought that this was the place to air grievances and bring jobbers and trade together.

Alex. Brown, known as Spit-Fire Brown, said hesaw no reason why jobbers Brown, said he saw no reason why jobbers in unison with members of the society, that they were dropping the practice of drawing plans and there would not be much chance for complaints in future. Also he thought that the trade did not have a clean bill of health when they tried to get another 5 per cent. off by saying the other fellow was giving it, etc.

G. A. Hawley, of Engineers and Plumbers' Supply Company, said he was a new member and strange to the trade but he never took a back seat yet. "Hawley is my name," said he. "look me over."

Mr. Armstrong, of J. H. Ashdown Co., stated that the legitimate trade has been hard to define but policy of his firm is to sell well to that trade. Similar remarks were made by Mr. Rees and Mr. Berlon.

Continued on page 23

CONTRACTS AND CREDITS

Financial End of Business of Equal Importance to Mechanical Details—Precautions Should be Taken in Entering Into Agreements and Contracts

Address delivered by Neil Beaton, of Beaton & Brady, Heating and Sanitary Engineers, Saskatoon, Sask., before Saskatchewan Association Convention, held at Saskatoon.

"I FEEL that this subject of 'Contracts and Credits,' which I will attempt to discuss in my feeble way, is worthy of the attention of a master mind, trained in the intricacies of commercial laws and practices. Unfortunately, my training has been largely along the mechanical end of our chosen profession.

"I believe that I may state without any fear of successful contradiction that the financial end of this business is of equal, if not greater, importance than the purely mechanical details. While we who have graduated from the ranks of the great army of mechanics have had a thorough training in the theory and practice of the trade, yet we lack the commercial and business training so essential to the successful pursuit of our calling.

"My purpose is not to enter into a long discourse on this subject before this assembly, among whom are many that have behind them years of experience, some maybe not altogether happy ones, but enough at least to enable them to avoid the pitfalls that unfailingly appear in the path of the untrained beginner.

"I wish to call your attention for a moment to a practice that is sadly prevalent among the craft, that is, of entering into agreements and contracts without taking the precaution of first ascertaining the financial status of the other party to the contract.

"I maintain we may employ all our knowledge in estimating sanely and accurately, display ability in buying our material and ingenuity in installing it, and yet if our contract is not bombproof, and we are unable to collect the agreed remuneration, we are on the road to bankruptcy.

"My experience has been that the vast majority of men in commercial life are inherently honest. Their inability to pay may be traced to any one of several causes: With an owner starting a job without sufficient capital to carry him through; failure to obtain a loan; death may come—any one of which will necessitate some one going without his money, and that one is inevitably the man that installed the plumbing and heating. Who of us has not had unhappy experiences with the lien laws, or has not had the experience of being able to collect all the payments as they came due but the last one? Yet, that is the important one. You have paid all your labor and material bills; the last payment is your profit; you go unpaid, and as sure and death and taaxes, you cannot hope to continue in business without profit. Many seemingly impossible tasks have been completed, but this one awaits a wonder worker.

"It, therefore, behooves us to scrutinize with infinite care any and all contracts presented for our signature. The contract form used by the Builders' Exchange in this city is good as far as it goes, but it does not give the contractor the protection he should have. Our local organization, therefore, discussed the matter of contract forms this past year, and finally appointed a committee to deal with the matter. To C. A. Green, our able secretary, I give the credit of fathering the idea, which we eventually had set in form by a local solicitor, who assured us that if we can get the contracting parties' signatures on this agreement we have no chance to lose. I have here a copy of this agreement, which you may peruse at your leisure.

"To give a brief summary of its contents, I may say that the chief and outstanding feature is the fact that it leaves title and ownership of plumbing fixtures, pipes, radiators, boilers, etc., in the possession of the contractor until paid for, with the right to possess and remove same, to sell same, either at auction or private sale, to satisfy his claim in whole or in part, and this agreement constitutes a claim in the nature of a lien note, which may be registered as Schedule A.

"In Schedule B the agreement takes care of the labor at a stated sum, for which a lien may be filed under the Mechanics Lien Act.

"We believe with this agreement that the difficulty of collecting the last payment will be overcome.

"In closing, gentlemen, I wish to impress on you the necessity of using discretion in extending credit, prompt rendering of bills when due, a sustained and earnest effort in your collections, as the nature of our business precludes the possibility of collecting in advance with almost insurmountable obstacles in repossessing goods after they have passed out of your control. I thank you."

IT CAME IN HANDY

When the representative of the Health Board called to remove the quarantine sign which had been put on the house to warn people of influenza there, he was met by the lady-of-the-house, a negro mammy.

"Doan yo' take that down—they ain't been no collectahs roun' heah sence that went up."

RIGHT ON THE JOB—GET BUSINESS

Continued from page 18

In all, ten men are employed in the hardware end of the business, several of these being in the office under the direction of Mr. G. Brousseau, who also has the hardware department under his direct care. Window displays are altered, and the arrangement is frequently changed—generally once a week. This being under the direct care of one man, he is able to arrange displays ahead of time, and carry on his display work on a certain day of the week. Surplus stocks are carried on the floors above.

More Improvements To Come

Plans have already been laid for excavating and providing a full-sized basement. This, when completed, will afford an additional storage space for needed stock, of seventy feet length and twenty-four width. The depth will be seven feet, affording a good clearance.

Among the important contracts secured last year was that of the heating and plumbing, as well as other work for the new St. Patrick's School at Quebec, and which work has just been finished at a cost of $35,000. This afforded a large staff of men many months' work, while other contracts for heating and plumbing in churches, halls, business blocks, etc., are secured, both in Quebec and in distant towns and cities.

To accommodate heavy goods being moved from the basement and ground floors, an elevator is being installed at a cost of $1,000. This spring an auto truck of two-ton capacity will be purchased to transport the heavy materials necessary to complete work which has been contracted for.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

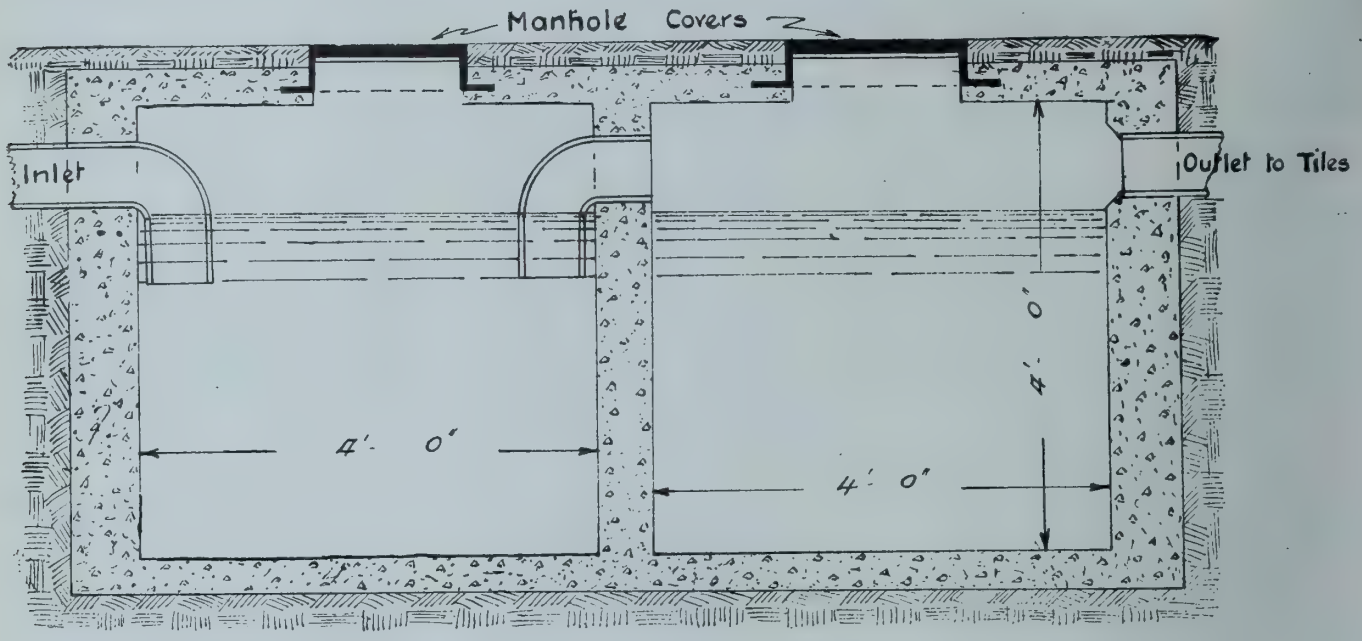


FIG 7.

Fig. 7 shows the section of a very simple double chamber septic tank, which was one of the first double chamber tanks installed. The sketch fully explains the construction and working operations of same, which have many defective points and cannot be classed as a modern septic tank owing to the rapid stride of improvements made in the design of septic tanks. This type of tank can be utilized in level ground, but with the exception of most of the sludge being retained in the first compartment it is very little better in design than a single chamber septic tank and possesses most of the objections already described in single tank construction.

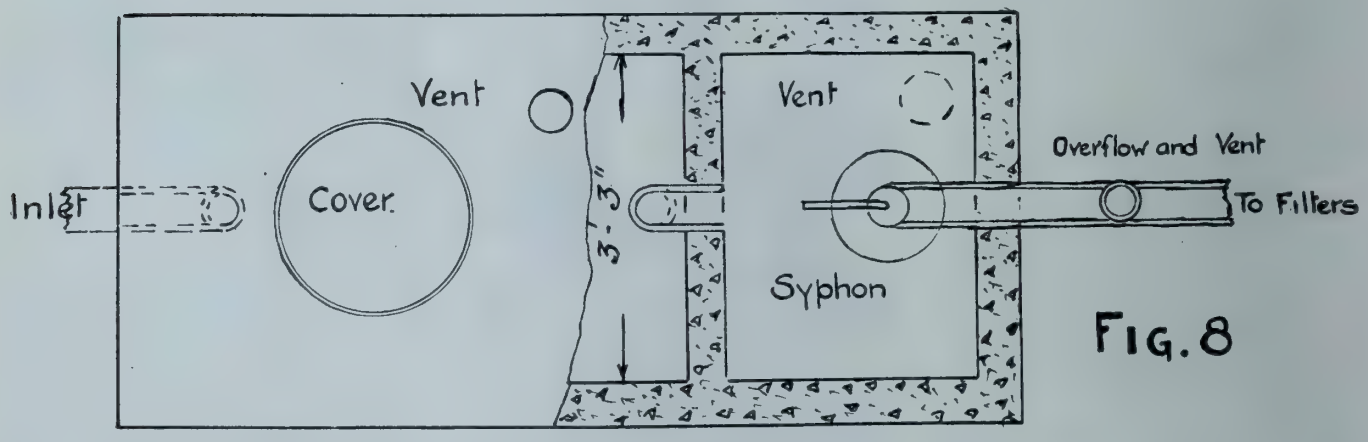


FIG. 8

Figs. 8 and 9 show the plan and section of a more modern and better designed double chamber septic tank. The sewage enters the liquefying chamber where the solids in the sewage are deposited and liquefied, whilst the clear liquid passes into the second chamber by means of a central pipe, as shown in sketch, which is carried below the surface of the liquid and scum level in order to make a water seal between the two tank connections. In the second chamber is installed an automatic syphon connected to the tile

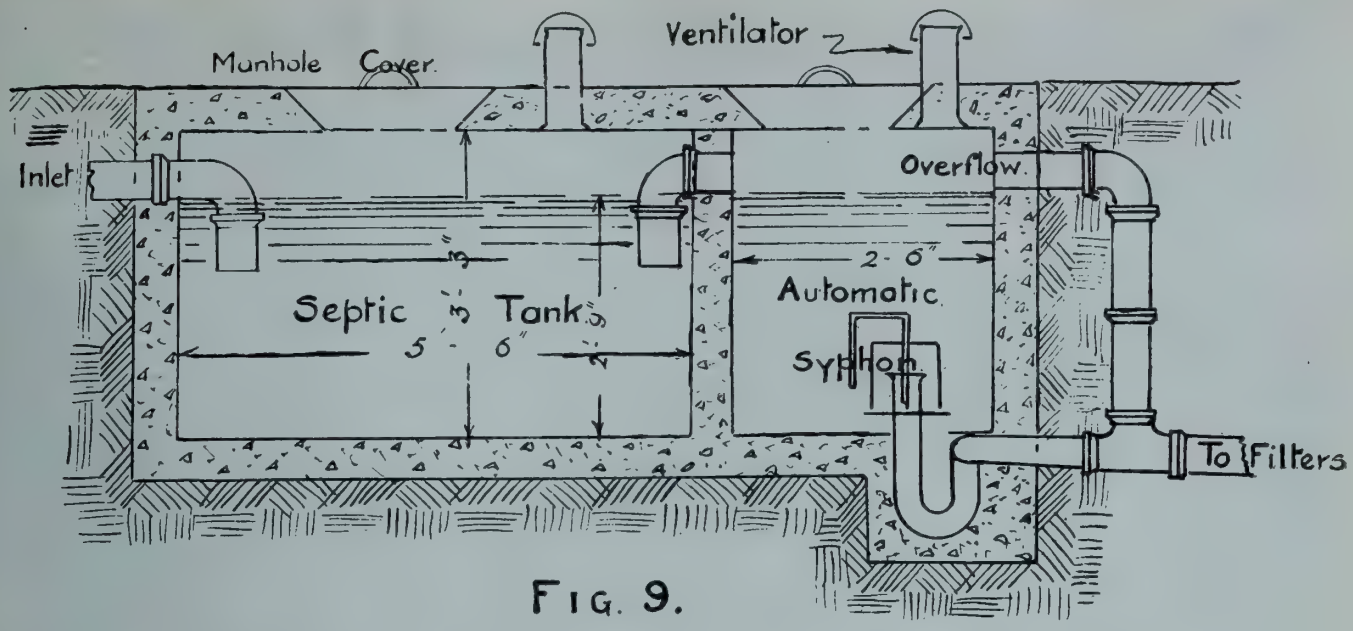


FIG. 9.

drains feeding the filtration area. An overflow connection is installed and connected as shown in sketch with the tile pipes. Both chambers should be ventilated as shown in sketches and cast iron inspection covers should be placed in the centre of each chamber.

SASKATCHEWAN CONVENTION

Continued from page 20

In a reply by Mr. Roantree to the wholesalers, he said that last year complaints had been made against all jobbers. He thought association should send list of members to wholesalers and get a return list of whom they consider legitimate trade.

Mr. Taylor stated that they had no control of actions of persons stating they were tradesmen; twenty-five years ago only hardwaremen in the business who employed plumbers and fitters were permitted to install work.

Mr. Stevens: "We should not worry if we are told by prospective customer that he has a price about 10 per cent. better. Take the attitude of friend Yates from Brandon and let him place the business with the other fellow and not meet the cut price. They cannot continue to do business long on too close a margin." Thus ended the discussion.

Secretary Adam reported a long distance message from D. L. Hoover, North Battleford, saying sickness in family prevented his attendance. Moved by Mr. Cornish, seconded by Mr. Roantree, that secretary send letter of sympathy to Mr. Hoover. Carried.

Adjourned. Next convention to be held at Moose Jaw, March, 1921. Date to be announced later.

Through the kindness of the Saskatoon Society and the wholesale houses, the members were royally entertained, consisting of a theatre party to the opera "Arcadians," where the president and Jimmy Yates found the well of truth. Humidifiers were operating satisfactorily; the grand finale taking place in the hotel Baldwin, where a splendid banquet was served, the Mayor and Architects being guests.

Toast list: Tost master, J. Brandon.

Toasts: "The King", His Worship the Mayor; "Our Visitors," Chas. A. Green and John Stevens; "Visiting Members," Neil Beaton and Tom Alexander; "Our Provincial Association," E. P. Paulin and N. B. Roantree.

The entertainment was provided by local talent and the party broke up singly "Till We Meet Again."

DEATH OF WM. GENEREAUX

Following an illness extending over some months the death occurred at London, Ont., of William Genereaux, who, for the past thirty-five years, had been engaged in the plumbing business. He was 57 years old.

—Cluff in the Rochester Herald.

Luring Them On

Ventilation and Exhaust Systems

Sanitation and Ventilation—Definition of Ventilation System—Exhaust System—Types of Systems—Unlimited Possibilities

Address delivered by C. W. Keniston, Sanitary Engineer, Industrial Commission of Wisconsin, at recent convention held at Milwaukee.

MY friends, this is a subject which is opportune and vital to the interests of the public and industrial health. The success of any movement or campaign depends on the cooperative spirit and punch of each individual, and when I received your valued invitation to address you at this convention, I thought that the desire to co-operate in this general movement for industrial health lived within your organization. But when I saw the definition of your watchword on this program, "Everybody is dependent on somebody for something" and "Everybody must work with somebody to secure the best results," then I knew what I wanted to talk to you about, and so I will tell you my impressions of how you can best help and be helped by the work on ventilation and exhaust.

Beginnings of Industrial Health Movement

The present industrial health movement began in England with the beginning of the use of machinery, a little more than one hundred years ago. The movement dealt first with children, then women, and now includes all industries and workers. The industrial health campaign is now recognized in our state laws by the occupational disease amendment to the Compensation Act whereby occupational diseases are made compensatable. Nor is Wisconsin the only state in this progressive movement. Massachusetts, Connecticut, California and North Dakota have similar occupational disease laws and New York, Ohio, Illinois, and Pennsylvania follow close seconds in their work to prevent industrial disease.

Industrial Disease

Let me define what is meant by this term. Industrial diseases are any diseases or disturbances of health the causative factors of which can be found to exist in the conditions of employment the patient had been exposed to. The state is now engaged in an active campaign for the elimination and prevention of these diseases. This will be a lasting campaign because industrial health is a national as well as a community asset. Our ability to compete with other nations depends on the health of all our people working in industries.

Best Cure Is Preventive

Prevention is the best cure for industrial disease and using this as a principle it will be the policy of the Sanitation Department of the Industrial Commission, working with your cooperation, to better those conditions of employment which may be considered as industrial disease hazards and to which occupational disease may be directly traced. These conditions may be divided into the following eight general classifications: (1) Dust, gas, and fume; (2) Dirt; (3) Darkness; (4) Dampness, cold or heat; (5) Bad air; (6) fatigue; (7) Poisons; (8) Infections.

Sanitation and Ventilation

The general methods employed to better these conditions are sanitation and ventilation. Ventilation, the method in which you are vitally interested, applies to six of these eight general hazardous conditions. The design and installation of these health safe-guarding systems is your work. This part of your industry is rapidly growing and is bound to increase with the advance of our Nation in the use of preventive measures against disease. Gentlemen, the point is you are now interested and vitally concerned in clearing from industry such hazards as dust, gas, fumes, dirt, dampness, cold, heat, bad air, fatigue, and poisons. In following the work of the Sanitation Department you will be called on to design and install ventilation and exhaust systems which actually will prevent disease. I am going to define to you these systems perhaps in a little different way than you are accustomed to; because these systems can not be merely considered as so many pieces of metal.

Defines Ventilation System

A ventilation system is composed of movements of the atmosphere, so regulated and controlled by any machinery or equipment that persons or materials within certain defined boundaries (such as rooms, factories, buildings, and other places of employment or local places within these areas) may be supplied with pure, fresh and clean air, for the purposes of breathing, purification and protection. Fresh air is both stimulating and refreshing to breathe and does not contain noxious gases, dusts, fumes, vapors or other material in such quantities as to be injurious to the health.

Ventilation When and Where Required

Ventilation systems are required in all places of employment or parts thereof.

(a) Whenever smoke, gas, dust, fumes, vapors, foul or vitiated air are present in sufficient quantities to obstruct the vision or to be irritating or obnoxious or injurious to the health.

(b) Whenever any industrial poisons are used or stored or handled in such quantities or manner that they may be or may become irritating or obnoxious, or injurious to the health.

(c) Whenever there is not available a sufficient amount of space per person.

Defines Exhaust Systems

An exhaust system is composed of movements of the atmosphere so regulated and controlled by any machinery or equipment that air contaminated with gases, dusts, fumes, poisons, vapors or other material injurious to the health may be removed from certain defined boundaries such as rooms, factories, buildings, and other places of employment or local places within or without these areas.

An exhaust system may be so designed and operated that it can also serve as a ventilating system.

Local exhaust systems are required in all places of employment or parts thereof whenever there is in operation any process, machine, equipment or present any materials in transit, use or storage, that can or does produce conditions which may require a ventilating system.

Systems Are Interchangeable

Ventilation and exhaust systems may be so designed, constructed and operated that either one can serve for the other or both. In other words, a ventilation system can be made to serve the purposes of an exhaust system; and an exhaust system can be made to serve the purposes of a ventilation system. Local exhaust systems are used to remove the hazard at or as near as possible to the hazard's point of origin. Some of the places where local exhaust systems may be especially applicable are belts, drums, rolls, discs or other equipment used for grinding, buffing, polishing or sanding; paint and enameling departments; sand blasts, tumbling barrels and rattlers, vats, tanks, pumps, sinks, baths, furnaces, salamanders, forges, pits, tunnels, and dust or gas producing machines or materials.

Emphasizes Policy of Protection

It is to be the policy of the Sanitation Department to ask that plans and specifications of all ventilation and exhaust systems be filed with the Commission. This, gentlemen, is a new departure. You ask, "Why are plans wanted by the State?" PROTECTION for employer in getting the best system for his requirements; PROTECTION to the employee in best saving his health which is his capital; PROTECTION for you, gentlemen, in helping you to give the best results by bringing to you the various types and principles that have given the best satisfaction elsewhere.

Importance of Prevention

PREVENTION of the violation of the fundamental principle which may be a

cause for the ultimate failure of a system, to the detriment of the contractor's reputation, or which might cause serious results, like expplosions. AN AID for the Sanitation Department more efficiently and intelligently to carry on the work it is charged with; that is, to promote the industrial health of the State and prevent occupational diseases. All for the purpose of helping and guiding the growth of this industry along the very best lines; and promoting better co-operation between the contractor State, employer and employee. This is going to put each one of you on an equal footing with the other. This means the elimination of cutting a hole in the ceiling or the installation of a wall or window fan and calling it a ventilation system. The POINT I WANT TO PUT ACROSS TO YOU is that YOU, whose work is the installation of these systems, NEED AN ENGINEERING DEPARTMENT or the use of one.

Factors of Installation.

The installation of a system does not only mean putting in the sheet metal work. It means, after the system is installed, that the conditions of employment must be safe for health, and the factors which govern the design, installation and operation of these systems should be shown on the plans. Some of these factors are included in the following items:

- General surroundings;
- Plans and elevations;
- Location of windows, roofs, partitions, exits;
- Location of equipment and character of the work performed;
- Number of persons employed and their distribution;
- Available cubic feet of air space (total space less than taken up by equipment and materials);
- Location of proposed ventilation and exhaust machinery;
- Location and sizes of air inlets and outlets;
- Location, size and shape of ducts and pipes;
- Location, size and type of fans, motive power or ventilator;
- Materials used in construction of fans, ducts and buildings;
- Cubic feet of air moved per hour;
- Velocity of air per minute produced at the throat of the hoods of exhaust systems;
- Any proposed heating, cooling or purification apparatus used in connection with the system;
- Any apparatus used to take care of the discharge of the system.

It is not necessary that all of these items show on every plan, but these factors must be used as a guide in the design of systems. Approval of plans is not required before work is begun unless the party for whom you are working insists that such approval be given.

Sizes of Systems

The plans in showing these items will enable this department more intelligently to co-operate with you. Where two or more firms are bidding on any contract, in no case will the plans of one be passed on to the other. The department will only specify minimum requirements; anything beyond these is a matter strictly between you and the interested party. The Sanitation Department does not intend to control details of construction and design; except only certain definite fundamental requirements. I believe that the policy extended towards these details should stimulate a desire on the part of your industry to always make better systems every time you take a contract. The regulation of details does not help this creative spirit. Publication of the designs and practice which have given the best satisfaction will serve as a guide, and when made available to all will promote the welfare of the industry.

Exhaust systems may be constructed using the following velocities applied at the point of origin:

1000-2000 feet per minute for most light dusts, gases, vapors, fumes and foul air which are produced evenly.

2000-2500 feet per minute for most light dusts, gases, vapors, fumes, foul air and smoke, which are produced unevenly or periodically.

2500-3500 feet per minute for medium weight dusts, wood, or sawdusts and sand blasts.

3500-4500 plus feet per minute for heavy dusts, bark, chips and other heavy material.

Types of Systems

The natural system, most commonly heard of and most thoroughly abused, you are but slightly concerned with, except as you change it to some other kind. You are dealing with the forced ventilation system, air blown into the plant and allowed to find its way out (or aided by auxiliary exhaust); the exhaust ventilation system, air exhausted out of the plant and allowed to come in through positive inlets (or aided by auxiliary system forcing some air in); and the combination system, where both ventilation or exhaust may be used to protect local hazards and at the same time ventilate the place of employment.

Forced Draft System

One important feature about the design of any mechanical or forced draft system is that the air currents produced are not governed by the old natural law. "Hot air rises and cold air settles." Hot air currents are controlled by the velocities and motions produced by equipment. The two most necessary requirements are positive inlet and outlet. The only time when doors, windows, cracks, elevator shafts and skylights can safely be used is when the air is forced into the enclosure to find its own way out.

The Final Test of All Systems

The size and types of systems are controlled by the items I have previously mentioned, which should appear on the plans. The details of the system can be fairly well gauged from these conditions also. The effects of materials used in process or construction of building come into play. The processes of manufacture can either use up the moisture in the air or fill the atmosphere with moisture, and this has to be considered when designing a system. Also it may be well to consider the fact that some systems must be constructed out of metal; when this is the case the proper material should be used because it only leaves a black spot on your record as a first class concern if a system fails in operation because of this mistake. There are many complicated technical questions attached to the proper design of some systems. THE FINAL TEST OF ALL SYSTEMS is the quality of the air used for breathing purposes. Not a U tube test, not a velocity test, but, gentlemen, the air must be pure enough so it can be considered safe for health. This all relays back to a previous statement; an engineering department or the use of such a department is needed and is a proposition which your industry would do well to consider.

Possibilities Are Unlimited

The amount of work in sight is almost unlimited. It divides itself into two kinds, that of new installation and that required to be installed in existing plants. New installation is, of course, to the liking of some, the best business; but the man who has to put in a system where work is being carried on, in the presence of all kinds of obstacles as shafts, floors, walls, machinery and equipment, that man sure must have some Yankee ingenuity. However, his problem is definite, while new construction is designed to take care of future conditions, and in this respect the collection of data from all systems and publication of the best results obtained under various conditions will be a valuable asset to this industry and the State. It is impossible to estimate the total valuation of the work connected with the installation of ventilation and exhaust systems. My recent work in the Wisconsin industries show me that your field of endeavor is unlimited. The real valuation can only be estimated as the sum of the profits saved to business because of fewer compensation claims, and the increased production caused thereby; together with the great saving to our working people by the conservation of their health. You have not made a scratch on the surface compared to the work which will be done throughout the state and the rest of the United States. Co-operation is the real thing needed. When I go to a plant which needs improvements, the very first thing these proposed changes or improvements must do to be worth while is to cause a greateer balance on the profit side of the ledger; if it does that it will cause a greater profit for the employee which is his health, doing both it is a salable idea, otherwise useless and undesirable. Then, gentlemen, the first thing, the very first thing, asked me is this; and I have had it asked repeatedly, "Who

Continued on page 32

Test Yourself With These Questions

Answer Each One of Them and Then Check Up the Results—You May be Surprised to Find That There Are Weak Points in Your Business That You Have Never Considered—Stop All Leaks and Conserve Your Profits

(All rights reserved. Wm. A. Hersey, Robt. H. Ingersoll & Bro.)

PERHAPS *there isn't a single screw loose in your business.*

The question is—are you sure there isn't? Your position toward your business should be the same as that of a doctor towards his patient. A doctor examines his patient and finds out what is wrong and then prescribes a remedy. You, on the other hand, should examine your business—every so often—from an impartial viewpoint. Try to find your weak points and when you find there is anything wrong, or that there is anything that you are not doing that you should do—then do all you can to remedy it.

The following list of questions was made up after a long and careful study of the failings of many merchants. Ask yourself each one of these questions. Check those to which you cannot answer "yes." After you have completed the list, begin immediately to remedy the points on which you are lacking. Remember, by ignoring your weak points you are not harming anyone but yourself. It is just the same as if you would go to a doctor and then ignore the remedy he prescribes.

BUYING AND SELLING

1 Do you allow your personal tastes to influence you too much in your buying? .....
You should analyze your customers' wants and not your own preferences. People in each community have certain likes and dislikes which must be taken into consideration if you wish to secure all their patronage.

* * *

2 Do you overcome sales resistance by pushing nationally advertised goods? .....
Advertised lines are easier to sell than non-advertised lines. And it is the easier selling lines which help you to turn your stock oftener.

* * *

3 Have you studied all the goods you handle to know the selling points of them? .....
To secure selling points of the lines you handle, it is a good idea to read the manufacturers' literature on them—trade newspapers—newspaper articles, etc. These are but a few of the sources of information.

* * *

4 Have you carefully planned the interior arrangement of your store, that is, the arrangement of your different departments? .....
Quite often you can get good ideas for the arrangement of your store by studying the arrangement of other stores, especially the large and successful stores.

* * *

5 Have you a good lighting system to show your goods to the best advantage? .....

* * *

6 Is your stock clean and well arranged? Does it invite inspection? .....

* * *

7 Do you ever look at your store from the viewpoint of a customer? .....
If you will look at your store as a customer does, that is, casually pass your windows—go into your store as if you did not know anything about it, it will often help you make it more attractive.

* * *

8 Have you tried changing around the arrangements of your departments, to see which is the most profitable? .....
Quite often, by changing the departments from one part of the store to another, you will find it will enable you to sell more goods. The same is true of all other departments, and also all lines.

* * *

9 Do your clerks render prompt and courteous service? .....

* * *

10 Do you keep a record of your sales by departments, so that you can tell which departments are falling behind? .....

* * *

10a Do your records show you which articles and lines are not selling as quickly as they should, and have you a system of watching your records so that the slow sellers will not be in stock too long? .....

* * *

11 Can you tell each day the cost of the goods that you sell each day, so that you will know whether or not you are making a profit on the goods that you sell? .....

* * *

12 Do you keep a record of your sales by clerks, so that you know which clerks are earning a profit and which are not?

* * *

13 Are all of your goods marked in plain figures, so as to impress upon your customers that you do business on a one-price basis? .....

* * *

14 Do you put special efforts on certain departments because that department appeals to you more than others do? .....

* * *

15 Have you a system for securing names and addresses of new prospective customers, and facts pertaining to them? And do you also keep a record for securing of information that will help you make more sales among your customers, such as keeping a record of wedding anniversaries, birthdays, etc?

* * *

16 Have you tried to enlarge your selling territory in outlying districts, either through solicitation—or advertising?

* * *

17 Do you advertise through your local paper? .....

* * *

18 When you do get up advertisements, do you get them up because it is a job that must be done, or do you make them carefully? .....

* * *

19 Do you advertise seasonable goods? .....

* * *

20 Do you make a study of the advertisements used by other merchants, that is, not only those used by other stores in your line, but of other kinds of stores as well? .....

* * *

21 Do you make a study of manufacturers' advertisements of lines that you handle to get ideas for your own advertisements? .....

* * *

22 Do you use the cut service and other advertising helps supplied by manufacturers? .....

* * *

23 Have you a mailing list? .....

* * *

24 Do you keep your mailing list up to date? .....

* * *

25 Do you use your mailing list? .....

* * *

26 Are you able to tell from your records whether your advertising does actually increase your sales for the articles or lines advertised? .....

Some advertisements, such as advertising special sales, should bring immediate results, but unless you have the right sort of records, you cannot tell just how much good your advertising does.

* * *

27 Do you set aside an appropriation at the beginning of each year for advertising for the coming year? .....

That is, do you set aside a certain amount of money for the ensuing year, based on your expectation of the volume of business you expect during that year?

* * *

28 Do your records show what percentage you spend for advertising, that is, the amount you spend for advertising compared to your gross sales, and also, the amount you spend for advertising compared with your total overhead expenses? .....

* * *

WINDOW DISPLAY

29 Do you carefully plan your window displays, or do you just use your windows as show windows, and not as sales windows? .....

* * *

30 Do you display seasonable goods? .....

* * *

31 Do you keep your windows clean? .....

* * *

32 Do you try to have your windows better looking than the windows of your competitors? .....

* * *

33 Do you use manufacturers' display material? .....

* * *

34 Do you watch for manufacturers' advertising campaigns and plan window displays to connect up with those campaigns? .....

* * *

35 Do you have price tickets on most of the goods displayed? .....

* * *

36 Can you tell from your records whether your displays actually increase the sales of articles that you display? .....

Unless you keep a record of your sales by lines and departments, you cannot tell which displays pay the best.

* * *

GENERAL MANAGEMENT

37 Have you a good system of records that enables you to manage your business on facts, or do you manage it on guesswork? .....

* * *

38 Do you know how often you turn your stock in each department? .....

* * *

39 Do you know, beyond the possibility of a doubt, that the selling prices on everything that you handle are based on the proper mark-up? .....

* * *

40 Do you know exactly what your expenses are and whether or not they could be trimmed in any way? .....

If you merely keep a record of your expenses as money paid out, you cannot tell whether they are high or low, but you should keep them on an account basis, enabling you to know just what you are spending your money for. In every well-organized business, the manager should be able to tell at a glance what his expenses were for any particular time, for any particular class of expense.

* * *

41 Do you know how much you have to sell at the beginning of each month to meet your expenses for the coming month, and to make a profit? .....

* * *

42 Do you know what your net profit and expenses are for each month? .....

43 Do you know exactly how much money you have tied up in stock by departments? .....

* * *

44 Do you know how your expenses for any given month compare with those of a month, six months previous, or a year previous? .....

* * *

45 Do you know how large an investment your fixtures and your store represent, and do you charge off 10 per cent. for depreciation each year? .....

* * *

46 Do you have considerable trouble in making out your Income Tax Report, or are your records in such shape that you can make it out in a comparatively short time? .....

* * *

47 Do you charge off the right amount each year for loss through theft, or other reasons, that is, do you base your charges on facts, instead of guesswork? .....

* * * *

48 Do you know whether you have any lines that are eating up the profits you make on other lines? .....

* * *

49 Do you keep an accounts receivable ledger? That is—a record of all goods sold on credit, so that you know exactly who owes you and how much? .....

* * *

50 Do you use every effort possible to keep accounts receivable down to a minimum? .....

* * *

51 Are you careful in extending credit? .....

* * *

52 Do you know exactly how much money you owe to manufacturers, jobbers and others? .....

* * *

53 Do your clerks like their boss? .....

* * *

54 Do you try to educate your clerks to get the most out of them, or do you let them shift for themselves? .....

* * *

55 Does your treatment of employees inspire respect, loyalty and energy? .....

* * *

56 Do you pay your clerks on a salary and bonus basis, making it worth their while to increase their sales? .....

* * *

57 Do you discount your bills? .....

* * *

58 Do you belong to a local, provincial or national association, and do you attend their meetings? .....

* * *

59 Do you read trade newspapers? .....

* * *

60 Do you use your own and your clerks' time according to relative value, that is, do you reserve your time for executive work and plan to let your minor help take care of your minor work? .....

* * *

61 Are you open to suggestions, or are you set in your ways? .....

* * *

62 Do you like your work? .....

* * *

63 Do you take a vacation every year? .....

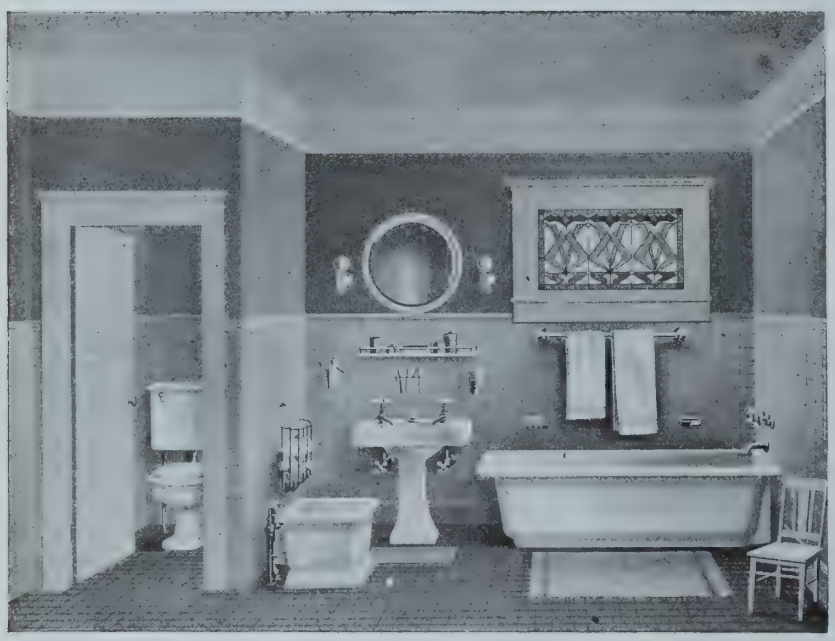
* * *

64 Do you take an annual inventory?—do you compare it with your permanent stock record to see whether or not you are short any goods? .....

* * *

65 Do you make immediate and satisfactory adjustments of all complaints, so that your customers are satisfied? .....

The Motor Car Links the Raises the Standard of



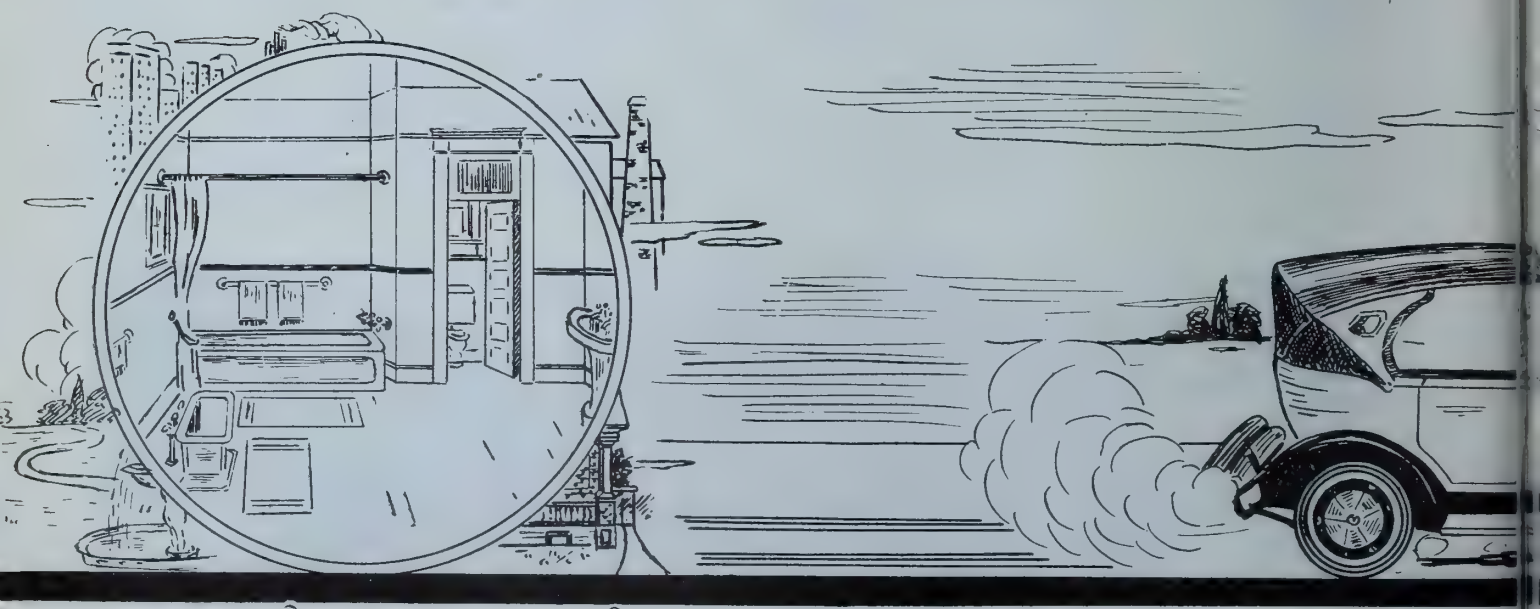
Bath Room—Plate "B"
A handsome installation for the better home

RURAL Canada was long isolated, as it were, from modern ideas of living, but has, through the motor car, come very closely in touch with the higher standard of living.

The motor car is the farmer's friend, and is creating a desire for comfort and convenience in the rural districts of Canada, which will result in thousands of our Canadian homes being modernized with Sanitary Equipment, Water and Sewage Disposal Systems.

Port Hope Sanita

Factory: PORT HOPE, ONTARIO
TORONTO SHOW ROOMS: 119 King St. East
WINNIPEG OFFICE: 405 Tribune Bldg.

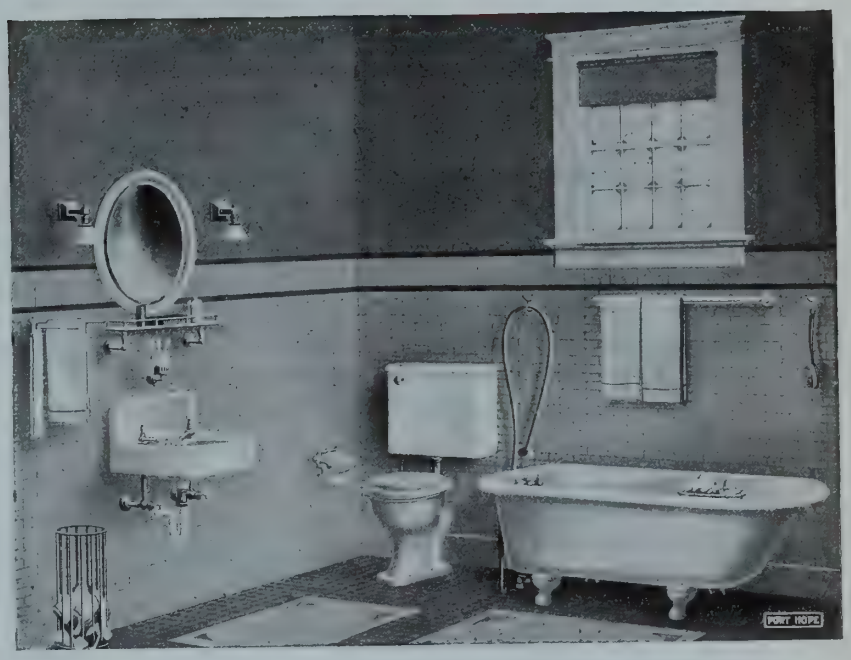


City and Country and Rural Plumbing Comforts

Will you get this business? It is worth thinking about and planning for.

Perhaps we can help you, or perhaps we can help each other, and in these days of "Drives" it would be the proper thing for the manufacturer, distributor and plumber to get together and have a "Drive" with the objective of "A Bathroom in Every Farm House."

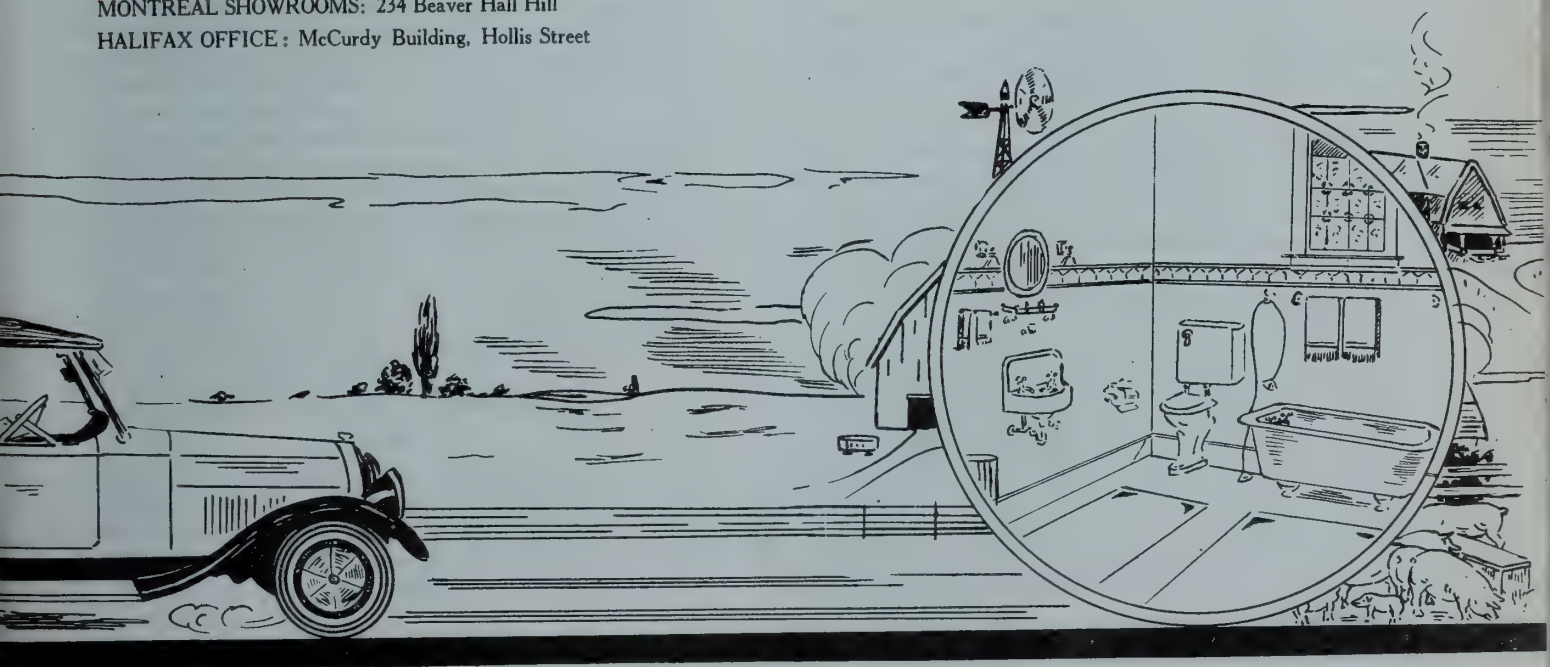
In the meantime, if we can help you with catalogues or illustrations of Enameled Iron Fixtures, write us. They are yours for the asking.



Bath Room—Plate "H"
Especially suitable for the moderate-priced home

Mfg. Company, Limited

Head Office: ROYAL BANK BUILDING, TORONTO
MONTREAL SHOWROOMS: 234 Beaver Hall Hill
HALIFAX OFFICE: McCurdy Building, Hollis Street



Rumor of a Tax on Sales in Canada

Outline of Workings of a Tax Which It is Rumored May Become Effective in Canada—Suggestion of 1 Per Cent. Tax on Sales

ALTHOUGH it has been intimated that the budget speech may not be expected before May 1, there are many men in the business world who are wondering just what the Canadian Finance Minister will propose in the way of taxation. It is well known that present methods of taxation have been faced with considerable criticism. Hardware merchants throughout Canada have been interested in rumors which have been circulating to the effect that a tax on sales may form the basis of a new method of taxation in Canada. Many inquiries have been made as to just how this tax could be applied and with what result. It has been rumored that the tax, if made effective, would be on the basis of 1 per cent. on sales. Thus an article of hardware passing from the raw material stage to the manufacturer, thence to the wholesaler, later to the retailer, and finally to the public, would be subject to a tax of 1 per cent. on four or more occasions.

A special edition of the "Bache Review" covers the question from several angles. While the Review urges a tax on sales as an economic tax which should be substituted for the present methods of business taxation in the United States, the points covered are equally as interesting to the Canadian business man as to the business man of the United States. After referring to the present methods of taxation in the United States as a destructive tax system, the Review outlines the proposed tax on sales as follows:

An Economic Tax Should Be Substituted

"There is only one way to escape this, and that is through a tax on sales, in which every citizen of the United States, as well as any foreigner who may live within our shores, will pay equally toward the expenses of the Government and have his stake in the country.

"A small tax, say 1 per cent., on sales, while it would produce in the aggregate an amount large enough to make it unnecessary to keep the excess profits tax in force, might be large enough even to reduce the surtax on income and would bear so lightly upon the individual that its existence would be scarcely perceptible.

"It would be, in effect, a flat percentage of 1 per cent. against volume of business, to be paid monthly by every corporation, partnership, association or individual in business.

"In the case of banks, brokers, jobbers or commission men, the percentage should apply on 'Gross Income' before payment of operating expenses, rather than against gross volume of business handled.

"The turnover in the United States for the year 1919 is estimated by a competent financial authority at between 1,400 and 1,500 billions of dollars. These figures have been arrived at by using a method employed by Prof. Irving Fisher. Mr. Fisher estimates the circulation of money and of checks, adds the two, and obtains a figure for the value of goods bought. His 1918 figures showed a total of 1,269 billions of dollars. The same method shows an approximation of 1,484 billions for 1919.

"From this amount must be deducted the turnover on the various exchanges — grain, cotton, stock, the sale of securities, municipal, corporation and others — but we do not think that these amount altogether to more than 500 billions of dollars. This would leave 1,000 billions of dollars to be taxed, but if we reduce this by half, if it should develop that duplication in the figures amounts to any such percentage, we would still raise 5 billions of dollars by this tax.

"That is, a tax of 1 per cent. on sales of 500 billions of dollars would produce revenue of 5 billions of dollars a year.

Advantages of a Tax on Sales

"The analyses appearing herewith show the tax of 1 per cent. on sales worked out for three of the important products of the country, and while this shows that the tax is duplicated several times during the progress of these commodities through business channels, the tax falls only once upon the same class of business men.

"In the case of the loaf of bread, the ultimate purchasers do not have to pay more for their loaf, and the tax would be absorbed by the seller in the various movements which the wheat makes until it reaches the ultimate consumer. On beef, the maximum would be 1 cent per pound, and the same rates would apply to hog products.

"The advantages of this tax would be that it would be equally paid by everybody in the country, and might lead, perhaps, to thrift, since those who wish to avoid paying taxes would only have to decrease their expenditures.

"If any such amount can be raised as would appear probable, predicated on the figures submitted, all income taxes on incomes of $5,000 or less would become unnecessary, and a nominal income tax on all other incomes would be sufficient. To-day an income of $5,000 pays between $120 and $160. Under the new tax, if it is expended in toto for the purchase of commodities, the income of $5,000 would pay a tax of $50, assuming that every article purchased has had the tax added and the consumer has had to pay it. But on many articles the tax is so small that it is absorbed or paid by the seller out of his normal profits and not added to the purchase price.

"This tax can only be consistently levied and collected if paid by the seller, and should be evidenced in the working out of the tax by stamps on receipts, where books are not kept, or by charges against turnover as shown by merchants' books less any allowance for stamps given on receipts. It would be the simplest tax that could be collected, and there need never be any dispute as to the amounts of individual taxes, as now arise in a multitude of cases under the present tax laws. It will require a very much smaller staff to collect, and practically no expert service. It will materially reduce the expenses of the Government in collecting taxes, and the yield can be very closely figured, and cannot materially shrink or increase by temporary developments in values or the volume of trade, since the turnover in the volume of the country's business rarely fluctuates more than 10 per cent. in a year.

"Realizing that this tax is such a radical departure from any other system of taxation now in use in this country, a campaign of education becomes an important essential. We are taking the liberty of putting this before you with a view of enlisting your interest in the movement and your aid in spreading the doctrine in your locality, bringing all the influence possible to bear on legislative bodies in Washington, so that full consideration may be given it."

APPLICATION OF THIS TAX

ON BREAD

In estimating the effect on the price of a loaf of bread, the tax would be levied first when the wheat leaves the producer; second, when it leaves the miller; and, third, when it leaves the retail grocer or the baker. Prices and taxes would be as follows:

When It Leaves the Farm

	Price	Tax
One bushel of wheat would be sold for, say..	$2.00	$0.02

When It Leaves the Miller

4½ bushels of wheat to the barrel, with flour averaging $12 per barrel, would make one bushel of wheat in flour, worth.....	2.67	.0267

When It Leaves the Baker

A barrel of flour makes from 260 to 270 loaves of bread. One bushel of wheat is two-ninths of a barrel of flour. This would make 60 loaves to a bushel of wheat. Figuring these 60 loaves at an average of 8c to 9c per loaf, price would be	5.10	.0510
This would make the total tax on all sales of a bushel of wheat, from wheat, to flour, to bread		$0.0977

This tax thus far — approximately 10c — is the total price to be added to the 60 loaves of bread on account of the 1 per cent. tax on sales progressively from the farm to the consumer.

This total tax, if passed along, is so small, amounting to less than one-sixth of a cent per loaf, that it could not be added to the price per loaf to the consumer. It would probably be passed on by the miller and be paid by the baker; but would be such an infinitesimal reduction from his profits that he would be almost totally unaffected.

These calculations are based on only three sales, from farmer to consumer; but if one or two more sales of the wheat take place it would still leave the tax at a small fraction of a cent to the loaf.

Further than this, it is stated that bakers do not bake half the bread used. Many domestic users buy flour from grocers and make their own bread. This further reduces the individual tax.

CALCULATIONS OF THE TAX ON BEEF

In the same way the tax-result on beef may be estimated as follows (result on steer killed July 17, 1919, lot 301):

Cost of Live Animal and Expense in Killing and Disposing of Resulting Products

Live weight, 1,202 lbs. @ 16.34 per cwt.....	$196.41
Expense and labor, buying, killing, driving, yarding, feeding, refrigeration, etc.	8.85
Cost of selling (branch house expense) 86c per 100 lbs.	6.10
Freight to branch house 710 lbs. @ 69c.....	4.90
Total cost	$214.26

Amounts Received for Products Sold

Fats—85.8 lbs. @ 18.81 per 100 lbs.....	$16.14
Hide—78 lbs. @ 32.71 per 100 lbs.....	25.51
Offal—Edible and inedible @ 41c per cwt (live weight)	4.93
Dressed beef—720 lbs. less shrink 10 lbs.—net 710 @ 23.99 cwt.....	170.33
Total selling price	$216.91

How the Tax Would Affect the Consumer

	Price	Tax
If we analyze these figures, we find that the cost to the packer of one steer would be	$196.41	
The tax of 1 per cent., to be paid by the farmer or the seller, would accordingly be		$1.96
Following up the 720 lbs. (net 710 lbs.) of dressed beef, the selling price of this would be	170.33	
On which the tax paid by the packer would be		1.70
The total tax which might be added to the beef, first by the farmer and then by the packer, would thus be, when the beef reached the retailing butcher....		$3.66—
Dividing this tax up among the net 710 lbs. of dressed beef, we find that the tax on each lb. would be.....		$0.005+
If the butcher sold the beef at, say, an average, all cuts, of 40c per lb., his tax would be four-tenths of a cent per lb. — or two-fifths of a cent		.004
The total tax thus far, if added to the price to be paid by the consumer, would thus amount to		$0.009

which is a little less than 1 cent a pound on beef. This includes all taxes from the farm, to the packer, to the butcher and to the consumer.

CALCULATIONS OF THE TAX ON HOG PRODUCTS

We have obtained, also from official sources, figures on the cost of hogs and hog products, and have estimated the tax which, under this plan, would be levied from the time the animal was sold by the farmer until the various products reached the consumer.

Result on Hog — October 17, 1919

Live weight, 306 lbs. @ 14.3c.....	$43.76	
Expense and labor, buying, yarding, driving, killing, feeding, refrigeration, etc.	4.59	
Total cost		$48.35

Value of Products Resulting from Hog

	Live weight	lbs.		
Hams	14%	42.84	@ 20½c	$8.78
Bacon and fat backs...	31%	94.86	@ 21¼c	20.16
Shoulders	12½%	38.25	@ 22½c	8.61
Lard	8%	24.48	@ 29c	7.10
Leaf lard	3%	9.18	@ 29½c	2.71
Other products	4.02%			1.44
	72.52%			$48.80

72.52 is the per cent. of marketable products to live weight

How the Tax on Sales Would Affect the Consumer

	Price	Tax
If we analyze these figures, we find the cost to the packer of one hog would be	$43.76	
The tax of 1 per cent. to be paid by the farmer or the seller, would accordingly be		$0.44
Following up the approximate 217 lbs. of consumable products of one hog, the selling price of this would be.....	48.80	
On which the tax paid by the packer in selling this would be		.488
The total tax which might be added thus far, first by the farmer and then by the packer, would be, when the hog reached the retailing butcher		$0.928
Dividing this tax through the 217 lbs. of consumable products we find a tax on each lb. of		$0.0043
The tax thus far on the 217 lbs. of consumable products is, as we have seen, about 93c, or at the rate of less than one-half of 1c on each lb. If the butcher sold the pork products at retail prices, he would receive about $107, on which his tax would be about one-half of 1c per lb., namely.....		.0049
The total tax, if added to the price to be paid by the consumer would, in all, amount per lb. to		$0.0092

which is a little less than 1 cent a pound on pork and pork products.

Montreal Permits Denote Building Boom

Figures Are Growing as Spring Season Nears—Return to Normal Will Necessarily be Gradual —Million and Half is Total First Quarter

WHAT is taken to mean a very satisfactory showing in point of prospective building in the City of Montreal, is revealed by the figures compiled at the City Hall, which, to March 31st, have totaled nearly a million and a half. This amount, while not large for normal times, indicates a real state of improvement, as borne out in the comparative figures. For the first three months of 1919 the building permit totals were $440,102, while those to March 30th, 1920, were $1,461,237, or well over a three-fold increase.

Expects Good Year

As far as the plumbing trade is concerned, a brisk season is anticipated. "There is quite a lot of work projected," said President Dan A. Bethune to SANITARY ENGINEER, in discussing the outlook. "Quite a number of contracts are in sight, among them a large school. I think the prospects are good for a busy season."

Of course there are difficulties in the way, for a return to normal, from conditions which have been provoked by the war, cannot come in a day, a month, or even in a year. Among these difficulties that of getting necessary materials has been a great and a growing one. But the trade is better pleased with the outlook, and radiators, lead products, basins and other fixtures, while much higher in price, are to be had in fair quantities. "We can get them, but we have to pay much more for them," said Capt. Bethune.

Then, next this problem, labor is one of the hardest nuts the craft has had to crack. Wages have advanced. "We are paying 75 cents an hour, on an eight-hour day basis, and in some parts of the city the scale is only 60 to 65 cents," further observed the Montreal president. This question, with a fair "give and take" principle adhered to by both employers and employees, will be reasonably solved.

Building Trade President Speaks

Montreal has its own problem, and labor leaders as well as employers realize the difficulties, and are trying to meet them. A recent statement of John W. Bruce, chairman of the General Conference Board, is of interest at this time. He said:

"I believe that if efforts were made to bring the Builders' Exchange and the Building Trades' Council together, some arrangements could be made to ensure the building operations so necessary at the present time and which could proceed without interruption."

Referring to the suggestion of the president of the Association of Montreal Building and Construction Industries, W. M. Irving, and which was to the effect that an earnest effort should be made to meet the men in the building trades by arranged conferences, Mr. Bruce stated further that, as far as the men were concerned, the object of such conferences as they had been holding was to promote and further a better spirit of understanding and co-operation.

VENTILATION AND EXHAUST SYSTEMS

Continued from page 25

can I get to do this?" Can you appreciate my position? I must not recommend any one particular firm. I should recommend the Wisconsin firms first. I should recommend the firms nearest the vicinity of the plant. You can readily see that if provided with the proper personnel or grouping of your industry that you and the Sanitation Department could help each other much better and the movement for Industrial Health would be materially helped.

Cooperation First and Last

For your consideration I am leaving these thoughts: CO-OPERATION: First, last and all the time; PREVENTION OF DISEASE: By ventilation and exhaust systems so designed, installed and operated that conditions of employment are safe for health. AN UNLIMITED FIELD OF WORK: which is increasing each day and calling for the man with the foresight and the nerve to make this business of to-day the big corporation of to-morrow.

Ottawa News

It looks now as though the Overland Water Supply Pipe System will not be completed until next year. Commissioner of Works Macallum has recommended that the finishing work be undertaken this year at a cost of approximately $125,000. The system, when completed, will consist of two 51 in. pipes from the Lemieux Island pumping station to the city distribution system. At present the twin pipes, each 51 in. in diameter, are carried from the pumping station to the east end of the Wellington street viaduct. From that point to the distribution system at Bronson avenue there is only one pipe.

Mr. Macallum has recommended that the other pipe be erected along a lower level, where it could be connected up with the standby station, known as the Queen Street Pumping Station. This pipe, at the Lemieux Island end, would also be connected with the low lift pumps, so that in the event of an accident happening, the low lift pumps will carry a supply through to the Queen street station, thus eliminating the dangerous system of pumping under Nepean Bay, which has an established reputation of being constantly polluted.

These recommendations are at present under consideration by the Board of Control, but it is not likely any action will be taken until next year.

Building permits issued during the month of March totalled 44, and represented an outlay of $102,775. The February figures were 9 permits at a total cost of $57,500. The March permits included: Private garages, 7; commercial garage, 1; stores and shops, 4; solid brick residences, 2; brick veneer and stucco residences, 11; stucco residences, 2; frame houses, 4; alterations to houses, 9; alterations to apartments, 2; alterations to stores, 1; warehouse, 1.

The Ottawa Housing Commission reports that since the first of February it has received 10 applications for loans, by individual lot owners. These represent a total outlay of $38,000. Eight of these applications are for loans of $4,000 each, to be applied to the erection of solid brick houses, while the other two are for loans of $3,000 each, one for a brick veneer and the other for a frame construction.

It has not been possible to grant loans in these cases, as the Commission's money for individual lot purposes has been exhausted. It is thought, however, that the Ontario Government's housing policy for this year will be determined very shortly, and that the Commission will be able to find money for these applicants.

There is considerable uncertainty as regards the prospects of an amicable settlement in the wage disputes in the various building trades in Ottawa. One day it is reported that the chance of a peaceful settlement is bright, and the next day there are rumors of a general strike. It is understood that some of the trades are willing to accept the offers, but others are more determined to hold out for the increased demands. The carpenters, for instance, have positively decided to refuse a sliding wage scale, and the asbestos workers are remaining firm in their demand for 45c an hour. The carpenters, at present, are receiving a flat rate of 60c an hour and are now asking for a fiat rate of 85c an hour. The builders have offered to settle on a sliding scale basis, running from 70c to 85c per hour.

A wage dispute between the corporation and its employees has been settled. The matter went to a Board of Arbitration and resulted in the city agreeing to a wage schedule, providing for the payment of 58c an hour to civic laborers. This class formerly received 45 to 50c an hour. The new schedule also provides for increases ranging from 10c to 15c an hour in the salaries of all other civic workers, outside of those employed in the various departments in the City Hall.

Chief Plumbing Inspector S. Daughtry was a delegate to the Provincial Plumbing Inspectors' convention in Toronto last week.

Montreal Craft Sees Encouragement

Increase of Membership One Hundred Per Cent.—With Effective Organization Great Future is in Prospect—Much New Work

THE membership of the Montreal Master Plumbers' Association has doubled within the past twelve months. So says Capt. Dan Bethune, the enthusiastic president, who, to SANITARY ENGINEER, expressed his confidence that the present season would record a big increase in the number of master plumbers who will come in. It is in this way that the association hopes to revive old, and stimulate new interest in the affairs of the craft. President Bethune, a tried veteran of the late war, is lining his men up for the next engagements, which are bound to come. There are enemies to be fought —enemies of progress, and these will be combated by the battalions of organized, business-like energetic committees. This does not imply that there will be open warfare as between the masters and the jorneymen. It does mean, in a nutshell, that the masters want to lift the craft up to that higher plane of appreciation of the important role sanitary engineers fill in community life today, which they have so much failed to realize and appreciate. And properly conducted association effort will accomplish this.

Combating An Evil

At its last regular meeting, the association dealt with an old grievance which has been up for consideration before; that of some jobbers and manufacturers selling at retail. It is, in Montreal, considered a great evil, in that, while many of the jobbers and manufacturers observe the rights of the plumber and steamfitter, some do not.

"Manufacturers realize that we are not organized well," said President Bethune, in discussing this matter, "and while some of them have been very fair in the matter, it has been difficult to get what we wish. Many are selling indiscriminatingly to whoever may wish to buy."

Much of this evil, SANITARY ENGINEER understands, has arisen from consumers being supplied with what they require at wholesale prices. Not only so, but in other instances those who have no license to purchase various fixtures, being in no way qualified to instal them, secure such fixtures as they want, and the plumber is cheated, as a consequence, out of a margin of profit which is justly his. If he is to instal the fixture, as, in accordance with by-laws he must, then he, and he alone, is entitled to supply the fixtures at a price to be decided upon by the owner. Such, at least, is the contention of many, and this seems very sound reasoning. Jobbers are willing, SANITARY ENGINEER is informed, to protect the plumbers, as fully as is possible.

Meetings Well Attended

During the past six months or more meetings have been well attended. Interest has, of course, centred around the new civic plumbing by-laws, which have been held in abeyance so long. As a matter of fact, some have wearied of the delays that have occurred, and deferred hope, verily, has made the heart of many ardent master plumbers sick. It was the consideration of these proposed by-laws, and particularly the consideration of amendments to them as proposed by the masters, and asked for by the Civic Administration of the City of Montreal, that brought members out. A hearty interest was taken in the proposals which are now in the hands of the civic authorities for consideration.

One of the interesting phases of association work in Montreal is that of the dual interest which is manifest on the part of both French and English-speaking members of the craft. A good spirit of comradeship prevails, and with this continuing, and with both sides interested in the increasing of membership, better days lie ahead for the association. Nought but good can come from the discussion of various problems.

Ready To "Go Over The Top"

Good leadership is essential, yea, it is vital. "We are ready, now, to go over the top," was the characteristic way President Bethune referred to the manner of the "attack" which the association is determined to make this year on various phases of the program. First of all, and perhaps of primary importance, it will be the endeavor of the masters to reach a sane and happy solution of any differences that may exist with regard to remuneration, hours, advancement, etc.

"The association point of view is a good one," continued Capt. Bethune, in referring to the matter of organization. "An effort is being made to effect a Canadian National Union, and probably this would be a good thing."

There always has been, SANITARY ENGINEER understands, a willingness on the part of the masters to meet the men fairly, and to pay them such wages as their work merited. This is the view of Past President Alex Charette of the Canadian Society of Domestic Sanitary and Heating Engineers. "We want to pay a man what he is worth," said Mr. Charette to SANITARY ENGINEER, "and are glad when a journeyman can do good work; we will pay him accordingly. We always prefer to have the man who can do good work and earn the higher wages. But the man who comes along and says: I am a Union man, what are you paying?' and who cannot deliver good work is not fair. We will pay, and pay well, for the plumber who can do better work; we are glad, always, to get these men."

Need Provincial By-Law

Mr. Charette believes that the lack of a proper Provincial By-Law for the guidance and protection of plumbers in smaller centres throughout the Province of Quebec is a sore need at the present time. He has long advocated, and hoped for a good working law that would ensure better plumbing, and a better understanding. It would work to the benefit of both the master and the journeyman, and, as well, to the ultimate satisfaction and protection of the owner. A uniform law could, Mr. Charette thinks, be evolved, which, if operative all over the Province, would ensure better conditions. "As it now is," he said, "there is little or nothing for the guidance of the craft. We need a good workable by-law such as is in use in Ontario."

BUILDING TRADES ELECT NEW OFFICERS

Officers to hold office for the year 1920, as representative of the Montreal Building and Construction Industries, were selected as follows among whom it will be noted, several master plumbers have been included:

Mr. W. M. Irving was re-elected president for the ensuing year, and the following other officers were elected without contest: First vice-president, K. D. Church: second vice-president, F. J. Parsons; third vice-president, Jas. K. McNutt; hon. secretary, John C. Watson; hon. treasurer, J. E. Walsh.

Directors—W. C. Munn, J. P. Anglin, John Quinlan, C. M. Morssen, Douglas Bremner, T. Latourelle, J. J. Roberts, Fred. B. Locker, A. W. Bremner, A. T. Alexander, Wm. McNally, J. M. G. Lockerby and John Grieve.

EX-PRESIDENT CHARETTE BETTER

After an illness of several weeks, ex-President Alex. Charette, of the Canadian Society of Domestic Sanitary and Heating Engineers, is about his duties again, "feeling like a boy again," as he says. Mr. Charette is "on the job" early and late, and believes that if one is to make his work tell this is the best principle to follow.

"THOUGHTS"—By Napoleon Hill

SELF-CONFIDENCE

IF you are a failure, if you are unhappy and despondent, you may see the person who is most to blame by stepping to the looking-glass!

It's sad, but true!

When you begin to succeed you may put it down as a sure thing that you have commenced to believe in yourself.

Through the principle of Auto-Suggestion you are constantly urging yourself on to greater achievement or defeating your aims, to the extent that you have faith in yourself or lack it.

Wrapped up in that wonderful brain of yours you have all the potential ability which you need with which to succeed in any undertaking that is **possible of accomplishment.**

You are the only person on earth who can cut the fetters which bind that force and withhold it from use.

The thoughts which you hold in your own mind are being constantly registered in the minds of those with whom you come in contact. This is a scientifically proven fact. Can you not see, then, how necessary it is for you to think well of yourself? Can you not see why you ought to believe in your ability to accomplish all that you undertake?

The line which marks the difference between the successful and the unsuccessful man is definite and easily removed. One believes he can do all that he undertakes and goes ahead and does it; the other one believes he cannot accomplish anything, so he never begins!

If you want to witness a marvellous transformation in yourself, commence now and for ten days stand before a mirror for ten minutes each day, look yourself squarely in the eyes and say—"I believe in you; you can finish everything you start; you can induce people to like you; you can get people to favor you by first favoring them; you can win people's confidence by placing your confidence in them." The result will be startling.

SELF-CONTROL

YOU can never become a great leader nor a person of influence in the cause of justice until you have developed great self-control.

Before you can be of great service to your fellowmen in any capacity you must master the common human tendency of anger, intolerance and cynicism.

When you permit another person to make you angry you are allowing that person to dominate you and drag you down to his level.

To develop self-control you must make liberal and systematic use of the Golden Rule philosophy; you must acquire the habit of forgiving those who annoy and arouse you to anger.

Intolerance and selfishness make very poor bed-fellows for self-control. These qualities always clash when you try to house them together. One or the other must get out.

The first thing the shrewd lawyer usually does when he starts to cross-examine a witness is to make the witness angry and thereby cause him to lose his self-control.

Anger is a state of insanity!

The well-balanced person is a person who is slow at anger and who always remains cool and calculating in his procedure. He remains calm and deliberate under all conditions.

Such a person can succeed in all legitimate undertakings! To master conditions you must first master self! A person who exercises great self-control never slanders his neighbor. His tendency is to build up and not to tear down. Are you a person of self-control? If not why do you not develop this great virtue?

A DEFINITE AIM IN LIFE!

CAREFUL analysis of more than ten thousand people disclosed a remarkable weakness which ninety-five per cent. of them had in common—

—they had no **definite** aim in life!

Another notable fact disclosed by these ten thousand analyses was that those who were financially successfully **had a definite aim** and a well-formulated plan for achieving it.

As far as this writer has ever been able to ascertain, there are two steps which every successful person must take; first, he must formulate a very definite aim as an objective for which to strive, and secondly, he must reduce that aim to a concrete plan.

If you wish to witness a miracle which will equal anything that happened during Biblical days, write out on paper a clear, concise statement of your aim in life, then memorize that which you have written.

Each night, just before you go to sleep, repeat your definite aim aloud several times, then, during the day, do everything within your power to further the achievement of that aim. In a short time the forces of the whole universe will seem to conspire to the end that you may realize your aim. Try it, doubting brother, try it.

ENTHUSIASM

ENTHUSIASM is one of the most desirable of qualities! It attracts people to you and causes them to co-operate with you.

Euthusiasm is the spark which touches off that dormant power which is housed in your brain and puts it into action.

Enthusiasm is a sure antidote for laziness and procrastination; it is the main-spring which keeps your mental machinery in action.

Enthusiasm overcomes despondency and. generates hope, self-confidence and courage. Enthusiasm stirs up you liver and puts it to work, thereby helping it carry on its vital function of cleansing your blood.

Enthusiasm arouses your whole being and causes you to transform your dreams into reality!

If you are not enthusiastic over your work you do not love it, therefore you are trying to perform work for which you are not fitted.

Enthusiasm is contagious! Unconsciously you pass it on to those with whom you come in contact and it arouses them to act and think as you do.

An enthusiastic person, when guided by a sense of justice toward others, is usually a great asset in any organization, business, family or community.

Are you a person of enthusiasm?

THE LAW OF RETALIATION

LIKE attracts like!

We see concrete evidence of this principle in every act and in every thought. Failure attracts failure, while success attracts success.

All down the ages the philosophers, seers and prophets have told us of this law, but generally they have stated it in axiomatic terms which have seemed to us abstract and more or less in the nature of preachments.

If you want evidence that such a law really exists, criticize the preacher, the lawyer, the doctor or the average layman and see whether he retaliates in kind or not.

Reverse the rule and speak in complimentary terms of one of these and see whether or not he responds in kind.

Building Active During February

Permits to Value of $4,568,074 Issued Last Month—A Large Increase—Total for the Corresponding Month a Year Ago Was $1,864,597—Building Conditions Unfavorable

Compiled by FINANCIAL POST

THE opening months of the year give promise of a revival of building activity throughout the Dominion on a scale that has not been attained since before the war. Returns of building permits issued during the month of February indicate that the totals for the previous month have been surpassed and the volume of building for the corresponding month a year ago, has been more than doubled. The total value of permits issued during the last month for the thirty-eight cities of the Dominion reached a total of $4,568,074, as compared with $1,864,597 for February, 1919, and $3,731,267 for the month of January. This may be regarded as a creditable showing in the face of unprecedented difficulties encountered by the building trades. The cost of labor has risen to an excessive degree, and the condition of the market for all forms of building materials shows no sign of improvement. The severity of the present winter has also had a tendency to interfere with operations.

The returns of practically all cities show a substantial increase for the month. As usual the twenty-four Eastern cities lead with a total value of $3,388,348 of permits issued, as against a total of $1,179,726 for the fourteen cities in Western Canada. Toronto again leads with a total of $1,462,768, a large increase over the total for the same month a year ago of $676,185. As in January, the city of Windsor was her nearest rival with permits to the value of $492,000. Montreal again fell far behind, although at $386,335 there was a considerable improvement over the total of $151,740 for February, 1919. In the West, Vancouver leads with permits to the value of $298,799, against $65,810 for the same month a year ago. Regina is a close second at $237,250; and Winnipeg has a total of $119,950 against $20,650 a year ago. The severity of the winter in the Prairie Provinces has had a depressing effect on building, and it is expected that genuine activity will develop in the spring. Halifax was one of the few cities whose totals for the month have declined, standing at $182,160 as compared with $250,248 a year ago. Stratford, St. Thomas and St. Catharines also report declines.

The gain for the first two months of the year is $5,274,560, the total standing at $8,299,341, as against $3,024,781 for the previous year. In the early months of 1919 the future outlook was beclouded in uncertainty and as a consequence construction was delayed. This year there are other difficulties, but the condition of the country is reflected in the increased totals reported. The totals will undoubtedly increase as the more favorable months for building approach.

The following are among the permits issued during the past month: Toronto, Baldwin's, Limited, factory, $200,000; Adams Limited, store, $300,000; M. Loew Limited, theatre, $275,000; York Township, schoolhouse, $121,000; Brantford, Brantford Roofing Co., $8,000; Hamilton, factory addition for Hamilton Cotton Co., $30,000; and factory addition for Brown, Boggs Co., $30,000; Peterborough, factory of Canadian Aladdin Co., $12,000; Windsor, Allan Theatre, $195,000; Burroughs Adding Machine Co., factory, $200,000; Woodstock, factory for McKinney Lumber Co., $20,000; Winnipeg, church, $50,000; Calgary, new wing to Yale Hotel, $50,000; Edmonton, Carroll Wilson Co., $30,000; C. P. R. building, $60,000, and extension to freight sheds, $20,000; Regina, Regina Trading Co., store, $125,000; H. G. Smith & Co., warehouse, $40,000; Vancouver D. Spencer, Limited, store, $100,000; Empress Manufacturing Co., factory, $20,000; Vancouver Knitting Co., factory, $10,000.

BUILDING PERMITS ISSUED IN FEBRUARY

	Feb., 1920	Feb., 1919	Change	2 Mos. 1920	2 Mos. 1919	Change
EASTERN CITIES						
MARITIMES—						
Halifax	$ 182,160	$ 250,248—	68,088	379,025	387,540—	8,515
Sydney	10,210	14,885—	4,675	24,730	29,040—	4,310
QUEBEC—						
Montreal	386,335	151,740+	234,595	613,990	211,894+	402,096
Quebec	160,910	53,630+	107,280	271,560	73,725+	197,835
Westmount	26,000	.....+	26,000	72,000	.....+	72,000
ONTARIO—						
Brantford	16,150	4,275+	11,875	146,620	6,925+	139,695
Chatham	7,500	8,100—	600	15,950	11,900+	4,050
Ft. William	7,400	4,500+	2,850	7,950	5,050+	2,900
Hamilton	218,775	189,965+	28,810	354,225	364,215—	9,990
Kitchener	14,850	2,660+	12,190	21,200	102,260—	81,060
Kingston	1,200	11,312—	10,112	7,855	13,579—	5,724
London	43,525	41,795+	1,730	73,210	59,326+	13,884
Ottawa	57,500	19,500+	38,000	136,200	69,850+	66,350
Peterboro	21,900	21,350+	550	26,850	21,540+	5,310
Pt. Arthur	5,740	322+	5,418	6,970	3,910+	3,060
Stratford	4,040	5,245—	1,205	8,238	5,325+	2,913
St. Catharines	7,445	18,140—	10,695	18,505	35,920—	17,415
St. Thomas	1,410	7,665—	6,255	4,210	10,865—	6,655
Toronto	1,462,768	676,185+	786,583	2,932,098	901,560+	2,030,538
Welland	8,900	14,150—	5,250	10,100	29,405—	19,305
Windsor	492,900	15,850+	477,050	1,128,850	42,400+	1,086,450
Woodstock	26,130	2,750+	23,380	28,630	2,750+	25,880
North Bay	2,000	.....+	2,000	4,000	....+	4,000
York Township	222,600	124,620+	97,980	276,850	169,600+	107,250
Total 24 E. cities	$3,388,348	$1,638,937+	1,749,411	$6,569,816	$2,558,579+	$4,011,237
WESTERN CITIES						
MANITOBA—						
Brandon	$ 8,000	$ 4,600+	3,400	$ 9,252	$ 4,600+	$ 4,652
St. Boniface	21,000	1,850+	19,150	21,500	1,850+	19,650
Winnipeg	119,950	20,650+	99,300	206,400	120,050+	86,350
ALBERTA—						
Calgary	105,800	47,500+	58,300	157,800	65,500+	92,300
Edmonton	149,100	3,200+	145,900	151,750	18,050+	133,700
Lethbridge	7,200	1,650+	5,550	16,000	1,600+	14,350
SASKATCHEWAN—						
Moose Jaw	4,950	1,625+	3,325	17,200	2,425+	14,775
Pr. Albert	13,450	2,900+	10,550	17,700	2,900+	14,800
Saskatoon	3,050	6,200—	3,150	33,475	8,120+	25,355
Regina	237,250	42,600+	194,650	249,650	46,700+	202,950
BRITISH COLUMBIA—						
Prince Rupert	36,010	.....+	36,010	56,340	1,800+	54,540
Vancouver	298,799	65,810+	232,989	570,116	144,007+	426,109
Victoria	79,952	10,000+	69,952	117,177	25,975+	91,202
N. Westminster	95,215	17,075+	78,140	105,165	22,575+	82,590
Total 14 W. cities	$1,179,726	$ 225,660+	954,066	$1,729,525	$ 466,202+	$1,263,323
Grd. to. 38 cities	$4,568,074	$1,864,597+	$,703,477	$8,299,341	$2,024,781+	$5,274,560

EDITORIAL COMMENT

SUCCESS AND PROFITEERING

BARON LEVERHULME, of Sunlight Soap fame, in a recent address referred to the prevailing habit of branding the successful business man as a profiteer. The spirit of to-day is one of cupidity and jealousy, he said, adding, "A feeling is running through the country that the primary sin of a business man is success. The man who has the ability to create, develop, organize and produce is considered as one who must be specially curbed, checked and controlled.

"Our war debts have to be paid by the persistent efforts of all to build up an enormous home and an enormous export trade. Taxation of wealth only means taking money out of one pocket and putting it back into another.

"The greatest disservice we can do the nation is to preach the doctrine that success is profiteering. There should be no interference with the enjoyment of the fruits of industry during the life of their producers."

There are many highly successful business men who have never been in the profiteering class, and there undoubtedly has been in Canada, as well as in England, a popular habit of describing as a "profiteer" almost every business man who, during recent years, has made a success of his business.

UNDER-PRODUCTION AND OVER-PRODUCTION

THE Mechanics and Metals National Bank of New York, under the above heading in a recent letter, treats the question of production in a rather interesting manner.

The distinctive feature of the present situation, states the letter, continues to be the extraordinary shortage of goods. Even in their personal expenditures people daily encounter the fact that not only are prices high, but that, more striking still, manufacturers are far behind in their orders, so that goods, if obtainable at all, are only to be had with difficulty or after long delays. It is asserted that so long as this condition of under-production exists, there cannot be any let-up in the present pace of business. Depression will not come, it is said, until output has been so increased as to overtake demand and "over-production" sets in. But it is difficult to see how the maintenance of American prosperity is to depend upon our continuing to produce fewer goods than are wanted. "Over-production" cannot mean the existence of more goods than are desired; we cannot turn out too much wealth. Yet it is not impossible, particularly if, presently, a foreign outlet for goods is barred through Europe's inability to secure credit, and if caution is not taken, that in certain lines more goods may be turned out than can be sold at a profit; and this is certainly not out of the question when costs of production are so high.

However, for the moment, the tendency toward declining prices is not sharply defined, and, generally speaking, the market for commodities is very firm.

INCREASING SALES

"THE best time to increase sales is before you have to." The foregoing remark, credited to a remarkably successful business man, emphasizes a point which is kept clearly to the forefront in the mind of the merchant at this season of the year. There is no good reason for pessimism of any kind at the present time. The outlook for the balance of 1920 is exceedingly bright. At the same time it is advisable to "cash in" right now on all the business that is available. There are very few merchants or salesmen who cannot, by a little extra effort, greatly increase the sales volume during the spring months. Extra effort exerted at this time in selling and collecting will enable a merchant to build up a reserve which is bound to come in useful later on.

TURNOVER TAX

ELSEWHERE in this issue an article refers at some length to the "Rumored Turnover Tax for Canada" A rumor is circulating to the effect that the present federal taxation of excess profits will be discontinued, and in its place a turnover tax will be adopted. This new tax would affect all businesses regardless of profits. In the hardware trade, as in other businesses, it frequently happens that a hardware merchant with a turnover of say $75,000 per year, makes a greater profit than another merchant who has a much larger turnover.

Nevertheless, the merchant making the smaller profit would pay the greater tax. There are many interesting phases to this subject and SANITARY ENGINEER in the next issue will publish the views of merchants and wholesalers. We also ask our readers, after reading the article, to write to us expressing their views on the new proposed form of taxation. Names will be withheld if desired when views are published in SANITARY ENGINEER. SANITARY ENGINEER'S representative at Saskatoon advises us that the Saskatchewan Retailers' Association is opposed to the suggested tax. The advice states "That the proposed tax on retailers of one per cent. or one-half per cent. by the Dominion Government would tend to increase prices of the necessities of life still more, is the opinion of Saskatchewan retailers, as represented by their provincial association, according to protests which are pouring into the headquarters from branches all over the province. The determined effort of the association, it is said, is to keep prices down, but this will force them higher and is therefore strongly opposed. It is termed an 'unfair measure' and an 'imposition.'" In our next issue we hope to give views of manufacturers, wholesalers and retailers.

CAUSES OF INFLATION

FOLLOWING Frank A. Vanderlip's address before the Canadian Club in Toronto a short time ago, there were many who expressed the opinion that he was altogether too pessimistic. However, it is noteworthy that several of the predictions which he made at that time have since been fulfilled. In a more recent address, Mr. Vanderlip, who was formerly president of the National City Bank, New York, stated that in his opinion the inflation of United States currency and of bank credit has, more than anything else, been responsible for the per cent. rise in prices in the last six years.

"There are three things upon which real prosperity must be based," he said. "These are ample capital, efficient labor and an application of sound economic principles. We are prosperous to-day in face of all three fundamentals, and our prosperity is false as well as dangerous.

"Incomes to-day are larger than ever before. Profits are larger. Yet fresh capital for business enterprise is less available than ever before. The chief reason for this is the Government taxes.

"But even were taxes reduced the situation would not be sound. The contention is that labor is only 60 per cent. efficient. There is no non-employment to-day. And yet, despite this fact, our productivity is lower than it has ever been."

Canadians are awaiting the Budget speech of the Finance Minister, at Ottawa, as a great deal of interest has been aroused as a result of rumors that changes will be made in taxation methods. Regarding the inefficiency of labor, Canadian manufacturers have also experienced lower productivity, despite constantly advancing wages.

ARE YOU INSURED ?

THE subject of fire insurance is one that every merchant should give a great deal of thought to. Every merchant, for his own protection, should carry fire insurance to at least eighty-five per cent. of the value of his stock and fixtures. The value of the merchandise is greatly increased by the amount of stock that is now being carried in the average grocery store. The merchant owes it to himself, his family, and wholesales to carry sufficient insurance that will amply cover any loss that may occur by the misfortune of a fire. Many grocers are carrying co-insurance. This is a form of insurance that the retail grocer should beware of. The plan of co-insurance is that you must carry at all times insurance to the amount of eighty per cent. of the value of your stock. For example, if you carry a ten thousand dollar stock you must have at least eight thousand dollars' worth of insurance, otherwise, in case of fire, the amount of insurance paid would be in proportion to the amount of stock carried. At the present time co-insurance for the retail grocer is rather risky. The increase in the amount of stock carried and daily fluctuations in prices, which are always upwards, make it so.

IT IS very easy to figure out that prices cannot possibly go any higher, only to come down in the morning and find announcement of 'steen lines that have hopped over night.

* * *

IF A metal workers' strike becomes generally effective in Canada on May first, it will further complicate matters and intensify manufacturing and delivery problems which are now sufficiently numerous.

* * *

THAT the farmers of Canada have contributed only $389,011 out of $83,768,110 collected during the four years the income tax has been in operation, was the statement of T. B. Patton, income tax adjuster and adviser in an address before the Kiwanis Club, at Regina. Even with a Farmers' Government in power, they could hardly contribute less than the small amount above stated. There must be something pretty rotten with the system when the farmers who have rolled up wealth during the past four years can get off with less than $100,000 per year income taxes.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

Trade Notes

The Draper Manufacturing Company of Port Huron, Michigan, has purchased a factory building at Petrolea, Ont., which will be remodelled at once and work commenced as soon as possible on making brass valves, plumbing goods and supplies.

Smith Bros. have leased premises on Wortley Road, London, Ont., and plan to open a plumbing shop about April 15.

Catalogues and Booklets

Ontario Wind Engine and Pump Co., Ltd.

Ontario Wind Engine and Pump Co. have issued a very interesting and unique wall calendar which should prove very convenient and useful, both as a calendar and as a reference for the different lines the above firm manufacture.

The above firm have also issued a well-illustrated catalogue containing twenty-four pages, which describes and illustrates their line of farm engines. Also showing parts such as crank shafts, connecting rods, piston rod assemblies, ignition, carburetor assemblies, etc., as well as types of mounted and stationary engines.

A line of pulleys, pump drilling outfits, etc., are also shown. Those desiring copies may have same on request.

Who is in Authority?

London, Ont.—Sanitary and heating engineers of London and district are watching with keen interest the outcome of the action of the city council, which, at its meeting on Monday evening, decided to suspend for three weeks the recently-passed plumbing regulations, which were printed in a previous issue of SANITARY ENGINEER. Immediately after the council's action, Chairman John Saunders of the Board of Health instructed City Plumbing Inspector Young to proceed with his duties as usual and make all inspections. The point to be decided is who is in authority.

Inspector is Busy

In the meantime, Inspector Young is continuing his inspections and seeing to it that all installations are made according to the provisions of the by-laws. Sanitary and heating engineers claim that this is absolutely necessary in the interests of public health. They are not all, however, unanimous regarding all of the provisions of the by-law and it is planned to make amendments to the clauses. These will make changes which are less drastic. The revision of the by-laws is now in progress and will be presented to the city council next week for approval.

New Clause in Montreal

A very important clause, added to the Montreal new plumbing by-laws, will require that a plumber hereafter, procure a license from the city, together with a certificate of competence, as to his qualifications as a certified plumber. In addition to this, it will be compulsory, on the part of masters engaging men, to furnish the city with the names of those plumbers in their employ. The new clause, added to By-law No. 318, and inserted after Section 2, reads:

"No master plumber shall employ a journeyman plumber, who has not obtained a license from the city, as well as a certificate of competence from the examining board of plumbers, according to section 5 of the present by-law.

"Every master plumber must furnish the city without delay the name and the address of each journeyman plumber in his employ on the demand by an official in the health department or of the license department."

GAS CONVENTION AT OTTAWA

The thirteenth annual convention of the Canadian Gas Association will be held at Ottawa, Canada, on Friday and Saturday, August 27 and 28. A cordial invitation is extended to all gas men. Hotel reservations can be made through the secretary, G. W. Allen, 19 Toronto Street, Toronto, who will supply all information on application.

Ottawa Notes

At the suggestion of the Ottawa Board of Trade, Mayor Fisher has issued a proclamation providing that daylight saving start on Sunday, May 2, instead of May 1, and end on Sunday, October 3, instead of October 1. The idea of the Board of Trade was that there would be less confusion if the change were made on Sunday instead of a business day.

The C.P.R. will be urged to establish a station in the west end of the city. The nearest stop to this end of the city at present is Britannia, a distance of about five miles.

Claims Mass Production Will Have Bad Effect

Under the heading "Mass Production and the Craftsman," the "Ironmonger" states that whatever mass production may do in the way of increasing output and reducing working costs, it has one serious disadvantage which has been somewhat overlooked in the general booming of the system. One of the fundamental principles of mass production is the sub-division of work so that the individual workman is concerned only with one particular operation, and, provided he is skilled in that, nothing more is required of him. Under this system, therefore, a group of workmen, none of whom could be described as a skilled mechanic, could construct a highly complex machine, provided the parts were standardized and there was efficient technical control over the erection. The type of work evolved by this system is well illustrated by Mr. H. Tipper in an address to the American Society of Automotive Engineers. Mr. Tipper went into the factory of the Western Electric Co. and saw a white-haired man standing by a punching machine. The man was pushing steel plates into the machine, punching them and passing them on to another workman. Mr. Tipper asked him, "What is that plate?" and the following conversation ensued: "That is P-X-111."

"You don't get me; what do they use it for?"

"I don't know."

"How long have you been on this job."

"Twelve years."

No doubt, this is an extreme case, but it is the inevitable tendency of a system which, while it may bring immediate profit, will later have a harmful effect on the craftsmanship which is the foundation of British engineering. Its influence on the training of engineers will be bad, for they will not have the same opportunities of acquiring an all-round knowledge as under the old methods. Mechanical engineers often maintain that the best training is got in the small shops, where there is a greater variety of work.

Market Conditions and Tendencies

Continued from page 42

Boiler Tubes Scarce; Firm Price Still Holds

BOILER TUBES —Jobbers state that shipments of boiler tubes are not coming any better and that in most cases it is almost necessary to send buyers to the mills in order to get any satisfaction whatever, and in many cases they state it is necessary for them to pay premiums in order to get prompt deliveries.

The shortage of skelp continues to be one of the main factors which is due, it is stated, to the previous strike of 1919. The demand is very good and were jobbers able to procure these stocks a record business would be handled, according to the present indication.

Boiler tubes are being quoted as follows, although in many cases the prices are nominal, as it is often necessary for premiums to be paid in order to secure immediate delivery.

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	$.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 50	30 00
2 inch	32 00	28 75
2¼ inch	36 00	31 25
2½ inch	45 00	35 75
3½ inch	69 00	48 75
4 inch	96 00	62 50
3 inch	53 00	45 75
3¼ inch	.....	52 50

Sheets and Plates Firm; Warehouse Stocks Nil

SHEETS AND PLATES.—Although this line has been scarce for some time, many have been looking forward to better deliveries. Jobbers state that deliveries have slightly improved and are hopeful of securing sufficient quantities for their needs.

The warmer weather seems to have brought about considerable increased demand and building activities are beginning to get under way, although it is the opinion of many that the anticipated building boom may be somewhat restricted owing to some deciding to wait till such a time as building materials would be much cheaper. However, it remains to be seen just what the season will bring forth. In the meantime, prices on sheets are very firm and are still hard to procure. The following prices are nominal and are as follows:

BLACK SHEETS

14 gauge	8 00
1 6gauge	8 10
18-20 gauge	7 95
22-24 gauge	8 00
26 gauge	8 05
28 gauge	8 15
3-16 inch plate	....
¼-inch boiler plate	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$10 00	$10 60	$10 45	$10 75
U. S. 28	9 60	10 20	9 75	10 35
U. S. 26	9 30	9 90	9 40	10 05
22 and 24	9 15	9 75	9 20	9 90
18 and 20	9 00	9 60	9 00	9 75
16	8 85	9 45	8 80	9 60
12 and 14	8 20	8 70	8 55	9 45

An extra is now charged on galvanized sheets, 10¾ oz. and 2 8ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Tin Some Weaker; Other Ingots Show Little Change

INGOT METALS.—The tin markets have shown some irregular prices, but is causing little comment owing to the strengthening of the English pound and other conditions which are continually developing. Other ingots on the list are practically unchanged, and the same conditions governing.

COPPER remains unchanged, showing fair demand. The present price is 24 cents per pound.

SPELTER continues to show a good demand, although the price is unchanged and is quoted at 17 cents per pound.

ANTIMONY is in fair demand and is being quoted at 15 cents per pound.

TIN.—The markets on tin are unsteady, chiefly on account of the European conditions. The present quotation is 72 cents per pound.

LEAD continues notably scarce and local stocks are light. The present quotation remains at 12 cents per pound.

Corrugated Sheets Firm; Big Demand, Low Stock

CORRUGATED SHEETS.—The demand for corrugated sheets continues to be very heavy and manufacturers are having difficulty procuring sufficient stocks of flat sheets to make up.

The warmer weather seems to have opened up new channels and the demand is continually becoming more persistent, although it is believed that this is more on account of the manufacturer not securing sufficient stocks in order to make the finished products, and some are of the opinion that the demand would be normal providing the manufacturers could secure sufficient stock to catch up with orders.

The following are the present quotations:

CORRUGATED SHEETS—	Per 100 sq. feet Galv'd	Painted
No. 28-gauge	$ 9 25	$ 7 75
No. 26-gauge	10 00	8 75
No. 24-gauge	15 00	11 00
No. 22-gauge	17 50	13 75
No. 20-gauge	21 00	17 50
No. 18-gauge	26 50	21 50

On shipments of 300 lbs. and over, freight is allowed south and east of and including North Bay; also several western counties in Quebec Province. Places north and west of North Bay, the freight is equalized on North Bay. For Quebec and Maritime Provinces, freight is equalized on Montreal.

Ad 5% to above list.

Cotton Waste Prices Firm; Unchanged

COTTON WASTE continues to hold at firm prices, the tendency being for higher prices, although no immediate changes are expected. Jobbers state that the present demand is brisk and a large amount of business is being handled.

The following are the present quotations:

WASTE	
Cream, Polishing	0 25
WHITE	
XXX	0 22½
XX	0 20½
X	0 18½
XC	0 17½
Japanese	0 17
XXX	0 24
XX, grad.	0 22½
XLCR	0 21
X Empire	0 19½
X Press	0 17½
X Special	0 15½

The Vacant Chair

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

IMPORTANT advances in prices have been made on numerous sanitary and plumbing supplies. The new VitrO tank prices have been issued and are about 10 per cent. higher. Syphon valves have been marked up as well as high and low tank ball cocks. Prices on closet seats have considerably stiffened, while laundry trays and sinks also have higher prices. Some lines of coils are among the list of advanced prices. Pipe fittings have been revised upwards, cast and malleable both being affected. Lead pipe and other lead products all have new higher quotations.

Nearly all in the trade are enjoying a very busy period which compares very favorably with some of the best years recorded. Collections have stiffened up to some extent, it is stated. This is said to be due to the situation which has developed in placing of loans by financial concerns, in order to hold in check speculative building and transfers, etc. However, this may work out more beneficial to all concerned, it is believed.

Many are wondering what will be the outcome of the proposed strike in the metal trades. The new proposed freight rates may also be a factor for higher prices.

TORONTO, March 30.—Higher and advanced prices are still the order amongst commodities whose basic material is of metal. This issue records important higher quotations on many lines. While other lines, although unchanged, are holding at firm prices and should the proposed strike become effective, as well as the higher freight rates and other factors, there seems little doubt but some of these lines will advance. However, in spite of the high prices being charged there are many who are force dto build, and incidentally the demand is a heavy one.

Some of the most important lines affected are Vitro tanks, syphon valves, high and low tank ball cocks, closet seats, laundry trays and sinks, some lines of coils, pipe fittings, lead pipe and other lead products.

Collections have stiffened to some exextent, although nothing of a serious nature, it is stated. This is attributed to some of the financial concerns tightening up on loans in order to discourage speculative building and transfers, it is believed.

New Vitro Tank Prices Now Being Quoted

VITRO TANKS.—As recorded in last issue of SANITARY ENGINEER, Vitro tank prices had been withdrawn. The new prices have now been announced, and, needless to say, are at an advance over former quotations. The new prices are as follows:

White Vitro tank, with wood strip seat, $22.50 each; white Vitro tank, with P.H. mahogany seat, $23.50 each; white Vitro tank, with P. H. oak seat, $23.25 each; oak Vitro tank, with wood strip seat, $20.25 each; oak Vitro tank, with P.H. seat, $21.00 each; mahogany Vitro tank, with mahogany post seat, $23.75 each. Inside fittings, seat, flush, elbow and supply are included in the above prices.

Douglas Syphon Valves Quoted at $2.75 Each

DOUGLAS SYPHON VALVES have been revised upwards, the new price being quoted at $2.75 each.

Ball Cocks Also Have Higher Quotations

BALL COCKS are now being quoted at new and higher prices. The ball cocks for the low-down tank are now selling at $3.00 each, net, while those for the high-up tank are quoted at $2.50 each.

Prices on Closet Seats Have Been Revised

CLOSET SEATS. — New prices have been made on closet seats, and in line with the general tendency of the wood market the revision is upwards. The wood strip is now being quoted at $3.30 each; the post hinge, $4.25 each; while the post hinge mahogany seat now sells for $4.75 each.

1 and 2-piece Laundry Trays Have Advanced

LAUNDRY TRAYS—Advanced prices are now effective to the trade on laundry tubs. The two-section laundry tray is now being quoted at $39.75. The sink and tray combined are also quoted at $39.75, while the one-piece sink is quoted at $19.85.

Coils; Some Lines Have Higher Prices

COILS.—Some lines of coils have been marked up to higher prices. This is said to be the result of the present shortage of raw materials, higher cost of labor, and other factors. Some of the new prices are: Number 10x9½ inches, $2.67 each; Number 15x13 inches, $3.50 each; Number 20x12 inches, $3.50 each; Number 50x15 inches, $6.33 each.

Range Boilers Unchanged; Have Big Demand

RANGE BOILERS continue to hold at unchanged prices. The scarcity of raw material continues to cause manufacturers some inconvenience. The demand so far this season has been of a heavy nature and manufacturers state they are shipping as fast as they can complete the manufactured article.

This may be an intimation of future business for the coming season, which usually becomes heavier as the season advances.

The following are the present quotations:

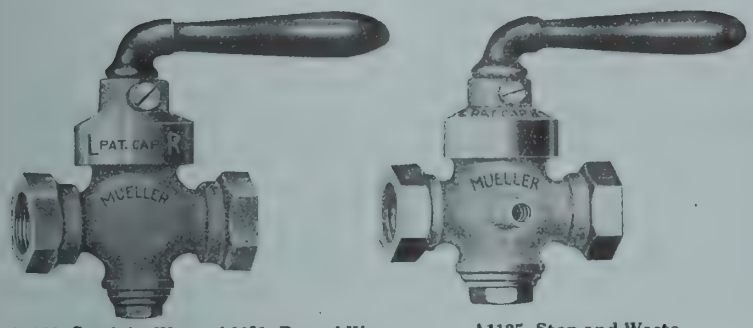
Range Boilers—	Standard	Ex. Heavy
30-gallon	$12 00	$14 00
35-gallon	14 00	16 00
40-gallon	16 00	18 00
52-gallon	22 00	25 00
66-gallon	35 00	38 00
82-gallon	40 00	47 00
100-gallon	50 00	58 00
120-gallon	60 00	67 00

Conductor Pipe Firm; No Higher Prices Made

CONDUCTOR PIPE AND EAVESTROUGH.—Prices on this commodity continue to hold, no changes having recently been made. Manufacturers have had to contend with the acute shortage

MUELLER
Ground Key Water Cocks

PATENT CAP
COLONIAL PATTERN



A1120, Straight Way. A1121, Round Way. A1125, Stop and Waste.

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

Dependability of MUELLER Ground Key Water Cocks is assured by the careful process of manufacture, providing the finest of core work thus insuring freedom from obstruction. Uniform thickness of walls is a MUELLER feature in this pattern.

The cocks will not waste from the pressure side at no point during the operation of opening or closing. No other make, to our knowledge, has this feature.

Every cock is tested at 200 pounds hydraulic pressure.

Canadian Money
Canadian Made
Should stay in Canada
For Canadian Trade

H. MUELLER MFG. CO., LTD.
SARNIA, CANADA

Are you on our mailing list?

of sheets to manufacture this line, and it has resulted in considerable inconvenience to all concerned. However, some manufacturers state that they have overcome these difficulties to a certain extent and have some stocks to offer.

The following are the present quotations:

PIPE (Conductor)
Plain

2 in., in 10-ft. lengths, list	....	8 00
3 in., in 10 ft. lengths, list	....	9 70
4 in., in 10-ft. lengths, list	....	12 80
5 in., in 10-ft. lengths, list	....	17 50
6 in., in 10-ft. lengths, list	....	21 30

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in	$6 90	15-in	$12 50
10-in	7 70	18-in	16 00
12-in	9 10		

F.O.B. Toronto, Oshawa, Ottawa.
Add 5% to the above list.

Pipe Fitting Prices Reach Higher Levels

PIPE FITTINGS.—Higher revisions in prices have been made on many lines of pipe fittings. Cast iron fittings are now quoted at net list. Plugs are advanced to 15 per cent. off the list; unions are also higher.

Class A, B, and C malleable fittings are also marked up. This is said to be due to the higher cost of manufacture. The new prices are firm and no further changes are being looked for for some time to come.

The following are the new prices:

PIPE FITTINGS

Cast iron fittings	Net list
Plugs	15%
Bushings	17½%
Unions, ¼-in. to 2½-in.	32½%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 65	0 80
Class B	0 28	0 38
Class C	0 19	0 28

Wrought Pipe Scarce; Price Remains Unchanged

WROUGHT PIPE.—Prices are unchanged, and some of the best selling sizes are scarce, it is stated. Manufacturers say they still have difficulty in securing skelp from the mills. The freight transportation is also causing some shortage, as supplies are said to be moving slowly.

Some have it that with the decline of the exchange rate that a slight reduction may be made in the list prices. To a certain extent the high rate of exchange was the chief factor for the last advance, it is believed. The present quotations are as follows:

PIPE — WROUGHT
Price List No. 43 — Feb. 3, 1920
STANDARD BUTTWELD S/C

	Steel Black	Steel Galv.	Gen. Wrot. Iron Black	Gen. Wrot. Iron Galv.
⅛-in.	$6 00	$ 8 00	....	....
¼-in.	4 83	6 96	$ 5 31	$ 7 44
⅜-in.	4 83	6 96	5 31	7 44
½-in.	6 42	7 99	7 10	8 67
¾-in.	8 11	10 24	9 03	11 16
1- in.	11 99	15 13	13 35	16 49
1¼-in.	16 22	20 47	18 06	22 31
1½-in.	19 39	24 48	21 59	26 68
2- in.	26 09	32 93	29 05	35 89
2½-in.	41 24	52 07	....	....
3- in.	53 93	68 09	....	....
3½-in.	68 54	85 56	....	....
4- in.	81 21	101 37	....	....

STANDARD LAPWELD S/C

	Steel Black	Steel Galv.	Gen. Wrot. Iron Black	Gen. Wrot. Iron Galv.
2- in.	$29 79	$36 63	$33 49	$39 96
2½-in.	43 58	54 71	49 43	60 26
3- in.	56 99	71 15	49 43	60 26
3½-in.	70 38	87 40	79 58	96 60
4- in.	83 39	103 55	94 29	114 45
4½-in.	95	1 19	1 20	1 45
5- in.	1 10	1 39	1 40	1 69
6- in.	1 43	1 80	1 81	2 19
7- in.	1 87	2 36	2 34	2 83
8-L	1 96	2 48	2 46	2 98
8	2 26	2 85	2 84	3 43
9	2 71	3 42	3 40	4 11
10-L	2 51	3 17	3 15	3 81
10	3 23	4 08	4 06	4 90

Terms—2% cash discount if paid within 30 days.
Approved credit.

Lead Pipe and Waste Up; Solder Also Higher

LEAD AND ZINC PRODUCTS.—New and higher prices have been made on this commodity. Lead pipe at 18½ cents per pound, while lead traps and bends are now quoted at an advance of 30 per cent. to the list.

This is said to be due to the situation which has developed in pig lead, it being very difficult to secure supplies, owing to the scarcity. The new quotations are as follows:

Lead pipe, list, per lb.	0 17½
Lead waste pipe, list, per lb.	0 18½
Do., over 8 inches, list, per lb.	0 19½
Above subject to discount of 10 per cent.	
Lead traps and bends	add 30%
Lead wool, lb.	0 16
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, per lb.	0 14
Cut sheets, ½ to ¾c lb. extra, and cut to size 1c lb. extra.	
Solder, wire, lb.	0 45¾
Solder, strictly, lb.	0 43
Solder, commercial, lb.	0 40
Zinc sheets, per lb.	0 19
Solder, guaranteed, lb.	0 43¾
Solder, wiping, lb.	0 40

Stove Plate and Cast Iron; Present Prices Erratic

OLD MATERIALS. — The list, as shown below, continues to be very quiet, although dealers expect a heavy buying movement to take place very shortly, as every indication points to heavy demand for all kinds of old materials. Cast iron and stove plate continue to be scarce. The demand is about regular with normal times, but the supply is not coming forward, and any supplies that do come to hand are quickly bought up. It is stated that some heavy premiums have been charged and this may be the reason that so many prices are current, as some are charging anywhere from $18 to $30 per ton at present. The following are the quotations:

DEALERS' BUYING PRICES

Pipe scrap	....	11 00
No. 2 busheling	....	13 00
Stove plate, per ton	....	....
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 08
Scrap zinc	....	0 06½
Heavy copper	....	0 17
No. 1 machinery cast	....	....
Wrought iron, No. 1, per gr. ton	....	15 00
Heavy melting steel	....	15 00
Heavy lead pipe	....	0 06
Old rubbers, boots and shoes	....	0 06
Overshoes, lumbermen's rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 04
Heavy lead pipe	....	0 06

Enamelware Prices Firm; Situation Unchanged

ENAMELWARE.—Prices remain unchanged, although present quotations are on a firm basis. The demand is heavy and manufacturers state that nearly all in the trade are carrying heavy stocks this year, with the belief that the firm that has the goods to sell will get the business regardless of price.

It is hard to say what will be the situation in the near future. Some have it that with the impending strike, also advanced freight rates and other factors, that higher prices may be made; however, this remains to be seen, and manufacturers and jobbers all down the line are well satisfied with the business that is being offered.

Some of the better known lines are quoted as follows:

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4345			11 05
18x24" Apron F154 or P3845 or P3847			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9.05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Soil Pipe Prices Remain Unchanged

SOIL PIPE continues to hold at a firm price, no higher quotations being made. The present demand is heavy for this season of the year, it is stated, and indications are that a large volume will be handled during the coming season.

Stocks are coming forward with little difficulty and no higher prices are immediately looked for, unless raw materials or labor advance, it is stated.

The following are the present quotations:

Medium and extra heavy soil pipe, 2, 3 5 and 6 in.	10%
Medium and extra heavy soil pipe, 4 in.	15%
Medium and extra heavy soil pipe fittings, 2 in. to 6 in.	25%
8 in. extra heavy pipe and fittings	5%

Plumbers' Compression Work Firm; Unchanged

PLUMBERS' COMPRESSION WORK continues to hold at firm prices. Manufacturers and jobbers state that business is very brisk and a good volume of stock is moving. The present price, though firm, seems steady and no immediate change is predicted.

The following are the present quotations on some of the better known lines:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	Net
Do., removable disc	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Continued on page 39

Morrison
Gauges
Accurate and Reliable

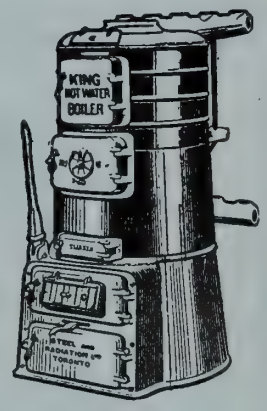
TRADE MARK J.M.B. REGISTERED A GUARANTEE OF QUALITY

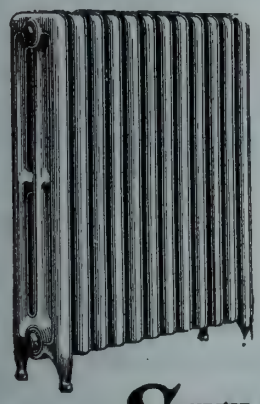
Not only are Morrison Gauges put to every test for accuracy, but they are accurate and reliable in practical performance as is amply proven by their general acceptance in mechanical work. Their general use in mechanical affairs everywhere shows that they enjoy the well-earned confidence of engineers, designers, draughtsmen and operative engineers—a sure sign that a market is assured for the merchant.

The James Morrison Brass Mfg. Co.
Limited
93-97 Adelaide St. W., Toronto, Ontario

KING HOT WATER BOILERS AND IMPERIAL RADIATORS

A Satisfactory Heating System





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Manufacturers of Hot Water *and* Steam Boilers *and* Radiators; Fenestra Steel Sash *and* Concrete Reinforcing

Head Office: Fraser Ave., Toronto **Sales Offices: Montreal, Toronto, Quebec.**
A Complete Stock of all Lines is Carried at Our Montreal Warehouse
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Have You Seen Mott's Quiet-Acting Syphon Jet Water Closet?
White Seat—China Tank

Made in Canada

MOTT'S PLUMBING

92 Years of Supremacy

Has been continuously manufactured since 1828. Our prices are no higher than other makers. Catalogue sent on request.

MOTT COMPANY, LIMITED
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Trade K–T Mark

FOUNDRY
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K-T

STANDARD

Soil Pipes and Fittings are of pleasing design and good finish. They look good and they **are good**

SPECIALS

Range Boiler Stands are adjustable to 30-35-40 gallon boilers, and you can connect directly under the boiler. Inexpensive but flawless.

Your jobber can supply our goods--if you ask for them

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Successors to Imperial Products

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Business Dry? Not Much!

DON'T you remember wondering, when you were a little Tad, what fun those great big chaps of twenty or so had? They didn't go "bobbing"—they didn't spin tops. Then you remember, perhaps, how, at twenty or so you rather pitied the old fellows of thirty-five or fifty who didn't dance (in those days) or do anything much.

But now, at thirty-five, fifty, or even sixty, you find there is plenty of interest in life. The form of fun may change, perhaps the ideas of what constitutes fun—but fun, interest, there still is.

Business is Rightly Called a Game

Business is the interest—the fun—for many of us. We enjoy playing ourselves and we enjoy reading about the play of others.

This is why THE FINANCIAL POST, dealing with business, is bright, entertaining, a welcome week-end guest in some eight thousand homes.

Consider some of the articles in a recent issue:

A sketch of George Sumner, the newly appointed head of Montreal's Board of Trade—a man who is at work every day at 8 a.m., but who has found time to become an expert photographer and art critic. Peter McArthur's new suit—dealing with the farmer writer's boasted purchase of an all wool suit for $45; speaking of the comparative value of this with one he could have bought prior to the war, and showing what he would have to pay for each in eggs and wheat.

A $4,000,000 stock offering coming for new movie chain.

Canada proposes to pick and choose her immigrants.

The Financial Post Editorials Have a Kick Behind Them

"Marse" Henry Watterson, the famous Democrat Editor, tells in his reminiscences of being criticized for himself criticizing the Democrat party. Marse Henry replied in his paper by quoting:

"Things have come to a hell of a pass when a man can't wallop his own jackass."

THE FINANCIAL POST is willing to wallop anything—but it doesn't wallop just for the fun of walloping. It wallops to achieve something.

Consider Some Recent Editorials:

"Give Drury a Chance"

An editorial describing the "sniping" by the daily press at the farmer Government—admitting certain mistakes of inexperience but calling for fair play; instancing how J. K. L. Ross, heir to many millions, was put, by his father, in a position where he could make mistakes in order that he might win through to success.

"Foolish Defiance of Canadian Law"

A scoring of the Fort Francis Pulp & Paper Company for refusal to admit the sheriff, and in other ways prejudicing the public against the pulp and paper industry as a whole.

S. R. Parsons Now Butts Into Insurance

An editorial telling of the Canadian Manufacturers' Association's mutual insurance schemes which went wrong, and pleading for a big man to manage the C.M.A. "The most useful and necessary institution in all Canada."

There's life in each issue of THE FINANCIAL POST. It will help you keep informed on important financial and business matters. It is a paper for the leaders of thought in each community, be they rich or not. Fill in and send to us the attached coupon. Annual Subscription $3.00.

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The Uncrowned King of Canada

IS Hon. James Calder the power behind the throne at the present time in Ottawa? The master politician who plans out all the moves in the political game?

Will Sir Thomas White shortly slip into the place of Sir Robert Borden and keep the Unionist Government in power until 1923?

These are predictions that J. K. Munro makes in the course of a witty, informative article on the political situation in the April 1st issue of MACLEAN'S MAGAZINE. J. K. Munro is writing the best political articles appearing in the whole of Canada.

Are we Playing into Germany's Hands?

"IF GREAT BRITAIN and the United States drift into subconscious antagonism now, Germany will have won in peace what she could not win in war," writes Agnes C. Laut in April 1st MACLEAN'S. She declares emphatically that for Canadians to create ill-will with the American people would be playing German's game in addition to losing—

1. Splendid trade opportunities.
2. Fully 100,000 families a year who will come over to Canada to escape agricultural difficulties in the States.

Miss Laut is saying things that will run contrary to the ideas of many people, but it is all the more worth while reading.

BINDING THE WEST WITH BANDS OF STEEL

The first of a series of articles telling the early story of M. J. Haney, who helped build the C. P. R. through the Canadian West.

A BIG NOVEL BY A YOUNG CANADIAN

In this issue will also be found the first instalment of a powerful and cleverly written new novel by a young Canadian author, Arthur Beverley Baxter. Do not miss "The Parts Men Play."

EIGHT MONTHS ADRIFT IN THE ARCTIC

The second and concluding instalment of Storker Storkersen's remarkable story of his long drift on a floating island of ice off the Northern coast of Canada.

"The Wistaria Arbor"— a short story. By Robert W. Chambers.

"Storm Along, John!"— a lacrosse story. By C. W. Stephens.

"Gentlemen of the Long Robe"— an article on the legal profession in Canada. By the Honourable W. R. Riddell.

"The Thread of Flame"— a powerful novel. By Basil King.

One Hundred Magazines in One

All magazines and periodicals published are read carefully and the best articles found are reprinted in part in the Review of Reviews section of MACLEAN'S. Here are a few in this issue:

The Strangest Tale of the War
The Red Hand Reaches Far East
The Triangle in the Pacific
The Rising Tide in Japan
Was Mrs. Wilson the Real President?
When the Giant Hand Falls
The Agitators in Washington
Civil War Possible in America
Romantic History of the "Chasers"
A German View of Canada
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Fig. No. 2437

Fig. No. 2434

The accompanying illustrations represent a few of our great number of products and give only a pictured idea of the high standard of workmanship of the company, realized to the fullest extent through using our goods. Every merchant will find them as represented, the finest quality of rubber, heavy copper without solder, and brass being used according to the qualifications of each particular article manufactured.

Write for catalog, giving a list of our entire line, among which are Wolverine Kant Leak Floats, Wolverine Coil Furnaces, Wolverine Waste Tank and Spud Washers, etc. Particulars of discounts are also stated.

Fig. No. 4096N

Fig. N5189

Fig. No. 3092

Fig. No. 3270C

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Fig. No. 3270B

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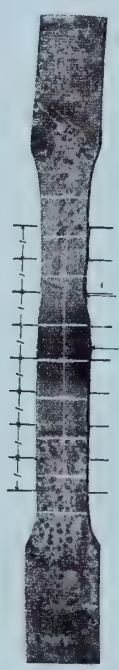

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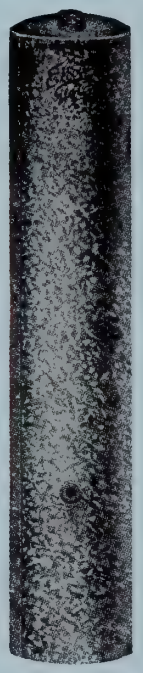

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DO PERFECT WORK
and make
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and
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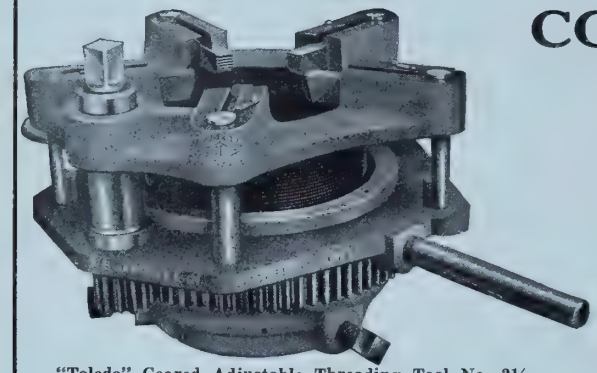

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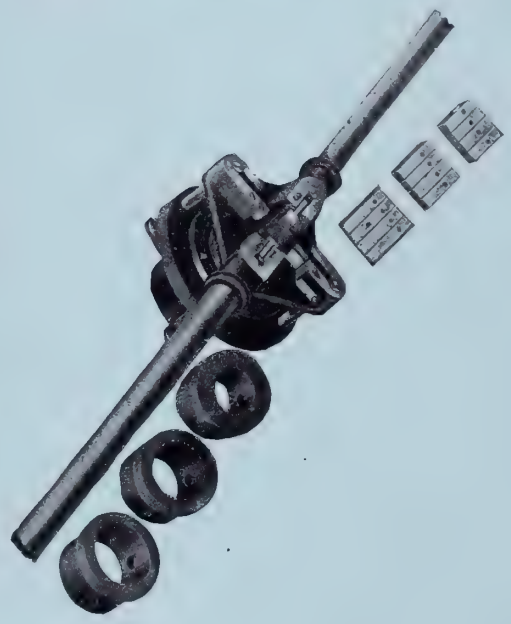

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Work easier than any other.
One man does the work of two.
Make perfect threads of perfect taper.
All threads finished at one cut.
Have lead screw insuring perfect pitch.
Are adjustable for variation in size of fittings.
Have no flimsy parts, they stand up to the work and cost little for repairs.
Cutters are interchangeable. Single cutters can be procured to match up with the balance of a set, should one cutter be lost or broken.
Strength, durability and simplicity of design are important features.
Imitation is the most sincere form of recommendation. We have a host of imitators.

Catalogue No. P-2 sent on request.

A. B. JARDINE & CO., LIMITED, HESPELER, ONT.

Sole makers of "Jardine" Pipe-Threading Tools. Sole licensees to manufacture and sell Toledo Pipe-Threading Tools of Canada.

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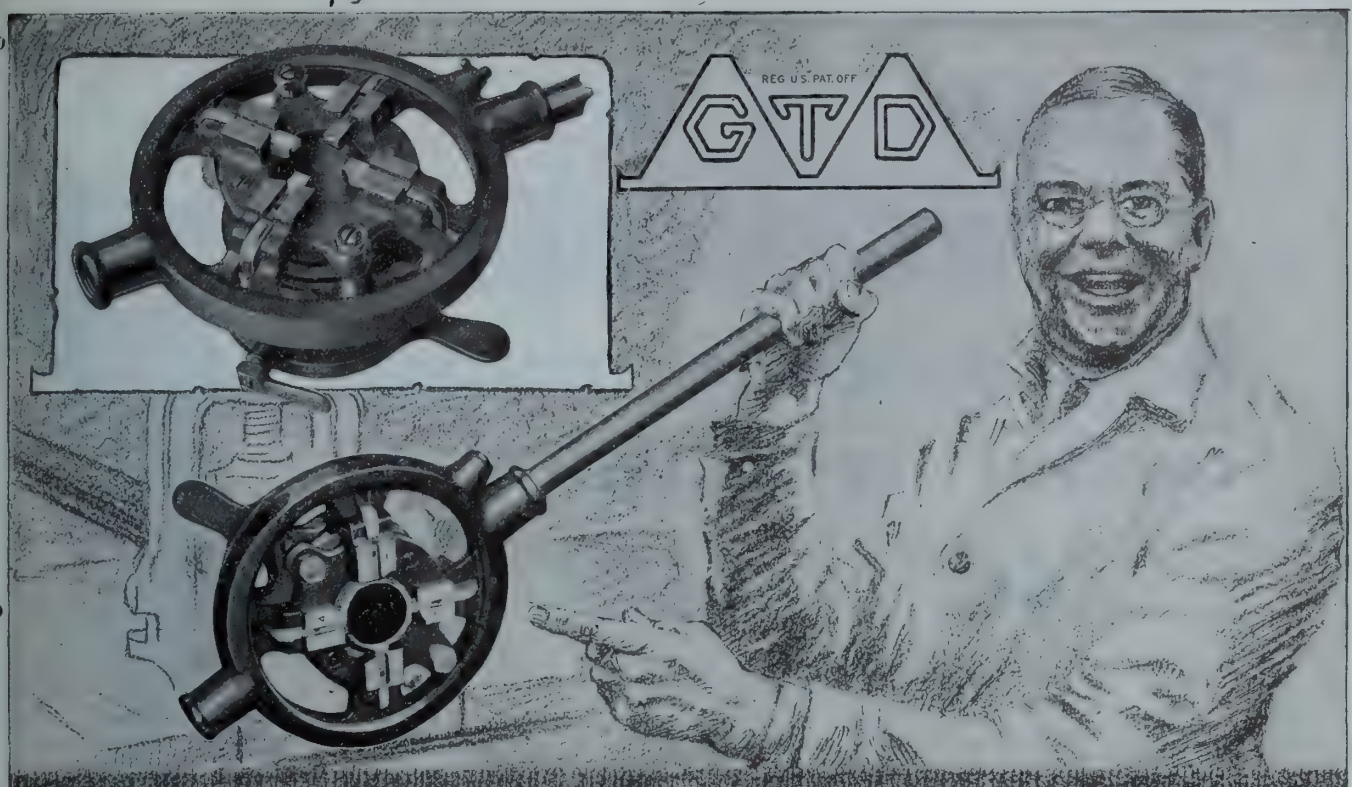

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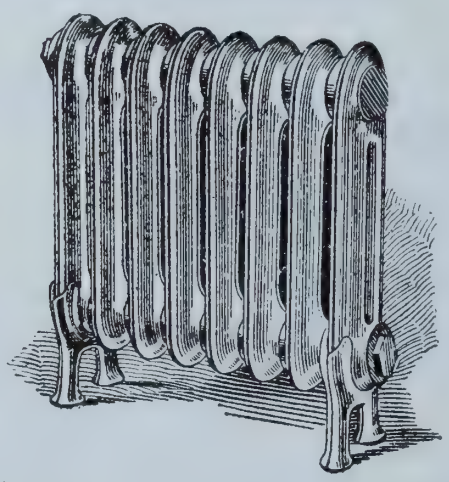

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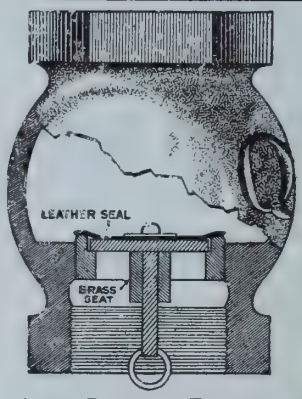

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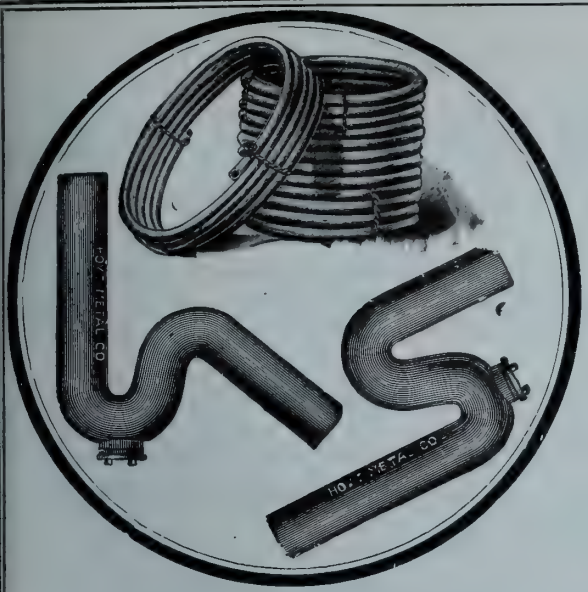

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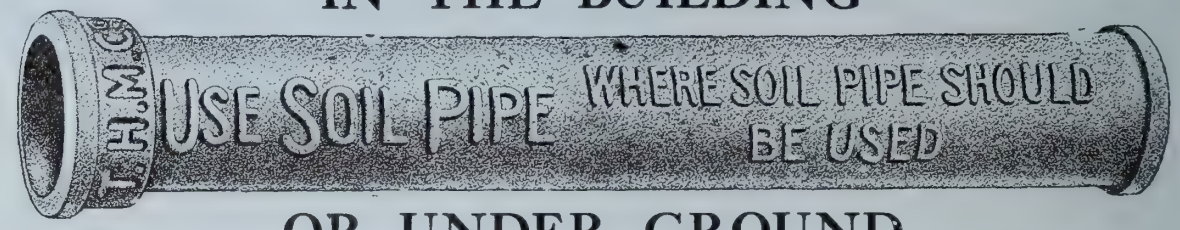

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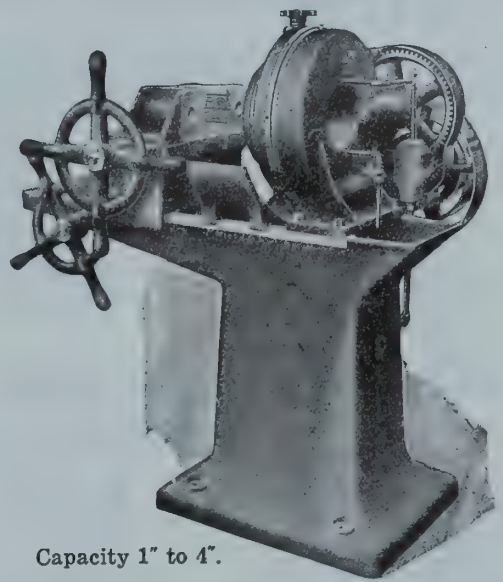

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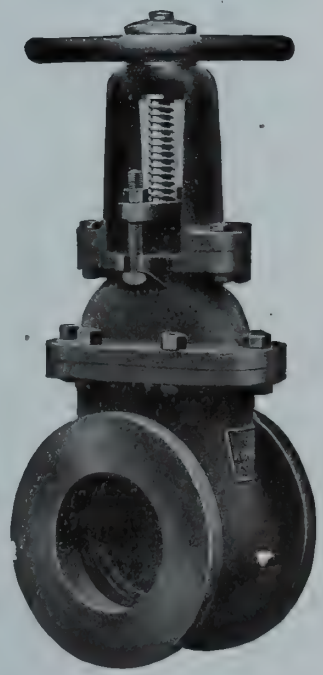

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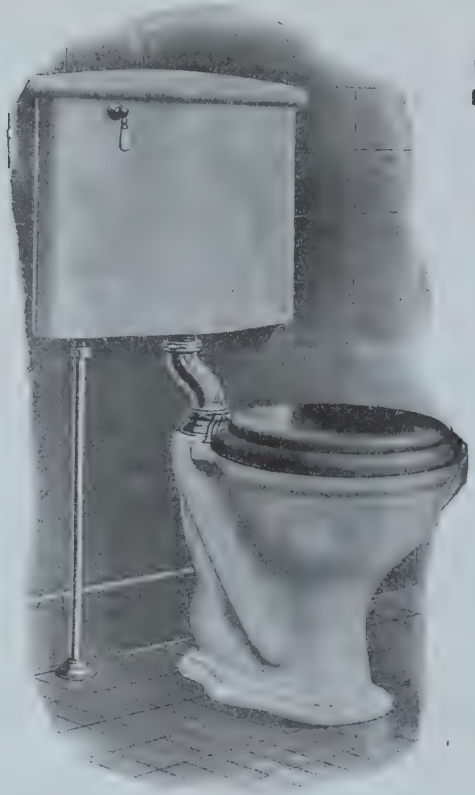

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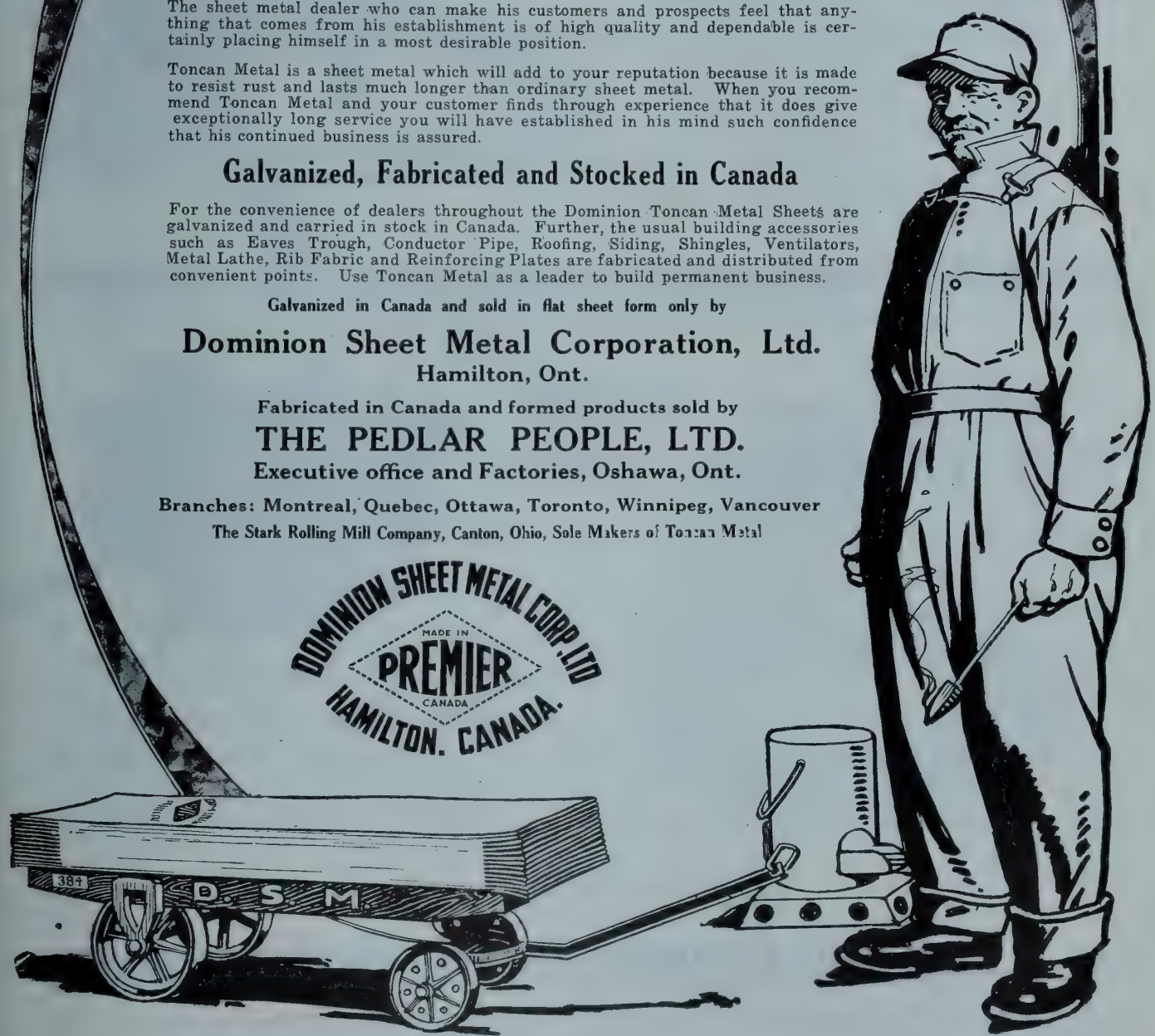

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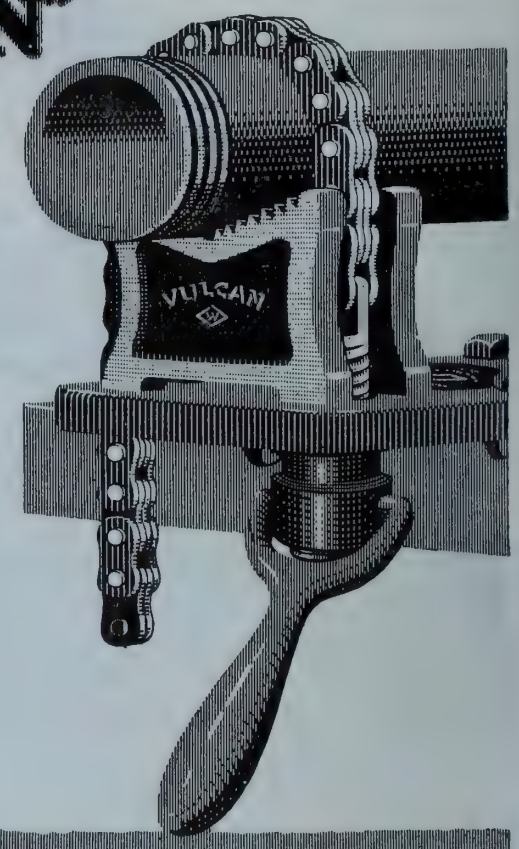

In general, you know there's no comparison between a cast and a wrought tool.

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Williams' "Vulcan" No. 4, for 3/8 to 8-inch pipe, is stronger, quicker in action and cheaper.

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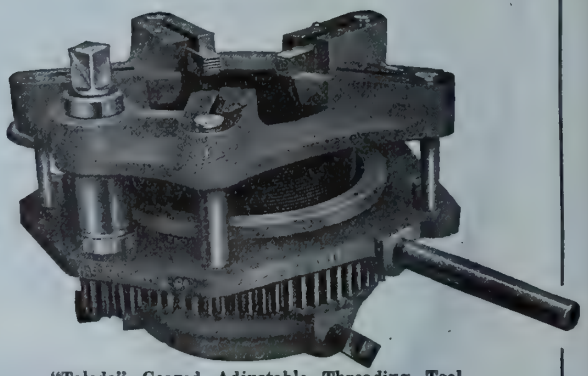

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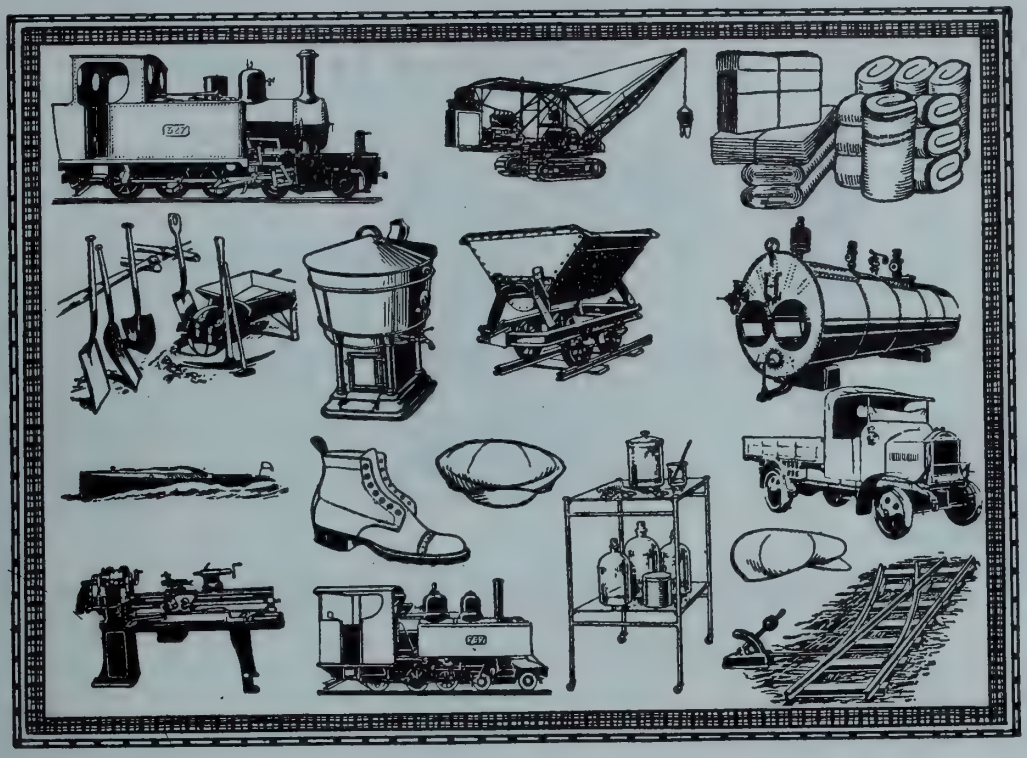

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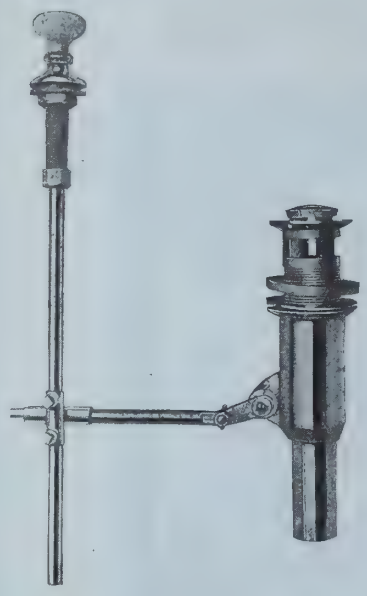

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DESCRIPTION

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Diameter of flange under waste knob 1¾ inches. Diameter of flange inside hole 2⅛ inches. Diameter of flange below bowl 2⅜ inches. Outside diameter of outlet tube 1¼ inches.

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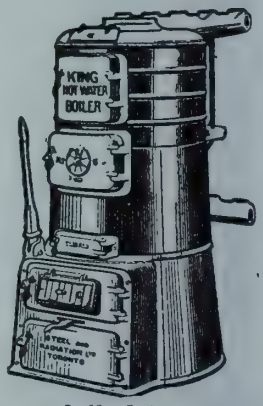

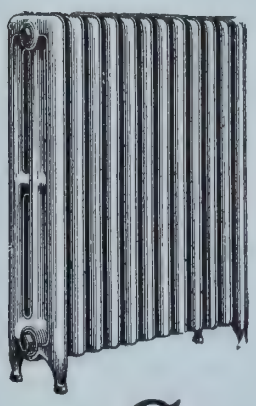

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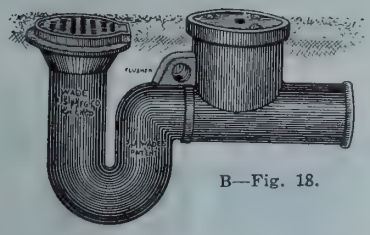

B—Fig. 18.

Wade Accessible Clean-out Drain Flushing Cesspool Back Water Gate Trap—Valve Combination.

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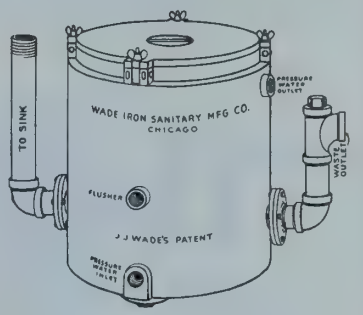
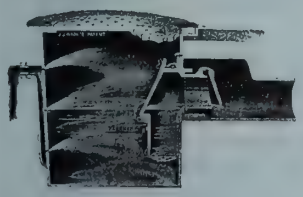
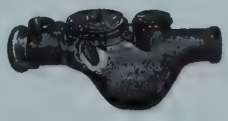


B—Fig. 27.
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

Wade Iron Sanitary Manufacturing Co. 551 W. Fulton St, CHICAGO



B—Fig. 126.
Wade accessible flushing cleanout floor wash and backwater valve combination.



B—Fig. 13.

Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.

Send for Catalogue

B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

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Twice a Month

"The Face in the Target"

The first of a series of mystery stories by the famous English author, **Gilbert K. Chesterton,** appears in the April 15th issue of MACLEAN'S.

Chesterton has created a new character in fiction—Horne Fisher who solves the mystery presented in each of the eight stories in the series: Fisher is greater than Chesteron's "Father Brown," more original even than Sherlock Holmes. This series promises to set a new mark in the fiction of mystery and crime detection. **MACLEAN'S MAGAZINE** is most fortunate indeed in being able to offer Horne Fisher and his exploits as a regular feature.

Canada Wants No Navy

A poll of press opinion shows that Canada does not favor the launching of plans for a navy at the present time. In this issue appears a careful summary of newspaper opinion on the question demonstrating that the editors of the Dominion—Liberal, Conservative, Unionist, Agrarian, whatever they may be—are almost unanimously against such a step. In every issue MACLEAN'S takes the problem uppermost in the public mind and, by summarizing newspaper opinion presents what is probably the consensus of opinion—the voice of Canada.

Entertaining Fiction

In addition to the Chesterton story which, by the way, is one of the important events of the year in the realm of fiction, there appears a splendid list of stories in this number, including serials by—

Basil King—The Thread of Flame.

Arthur Beverley Baxter—The Parts Men Play, and short stories by—

Robert W. Chambers—Pasque Florida.

Edith G. Bayne—Light of Morning.

Great Men of the Key

By Floyd S. Chalmers

An article on the successful men in Canada who started in life as telegraph operators, and why they succeeded. It is a surprisingly long list.

Binding the West With Bands of Steel

By J. L. Rutledge

The story of M. J. Haney, who built several sections of the C. P. R. through the West — a record of the days when men fought against great odds — nature and time and the unscrupulousness of other men. It is both a thrilling and entertaining tale of how great difficulties were met and overcome, with sidelights on the characters of the big men who figured at the time, including Strathcona and Van Horne.

One Hundred Magazines in One

In the Review of Reviews section, which is made up of reprints of the best articles appearing in all magazines and periodicals the world over, are the following:—

The Facts About Fiume.
Will Tories and Liberals Unite?
Milk the Absolute Essential
Has Morgan Ousted the Rothschilds?
Do Most Men Dislike Their Wives?
Britain Dominates Commercial Brazil.
Who Shall Control the Dardanelles?
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Pearls That Grow and Increase
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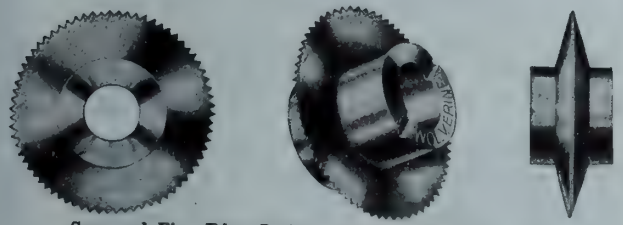

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The Canadian Society of Domestic Sanitary and Heating Engineers

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Frank R. Maxwell,
Toronto

Vice-President,
Harry Mahoney,
Guelph

Secretary-Treasurer
Garrett F. Frankland,
Toronto

THE TWENTY-THIRD ANNUAL CONVENTION of the Canadian Society of Domestic Sanitary and Heating Engineers

will be held in

TORONTO, ONTARIO

on

TUESDAY, WEDNESDAY, THURSDAY
June 8th, 9th and 10th, 1920

Exhibition of Plumbing and Heating Products will be displayed during the Convention by the Manufacturers and Wholesalers.

Ontario extends a welcome to the Sanitary and Heating Engineers in the Provinces of Prince Edward Island, Nova Scotia, New Brunswick, Quebec, Manitoba, Saskatchewan, Alberta and British Columbia, and invites the members of the Craft throughout the Dominion of Canada to be present on this occasion, when special features will be arranged in behalf of those attending this Convention. Every Sanitary and Heating Engineer in Canada owes himself a trip to Toronto on June 8, 9 and 10th, so make your preparations accordingly

Yours for co-operation,
FRANK R. MAXWELL,
President

Address all Communications to Garrett F. Frankland, Secretary-Treasurer, Room 303, 22 College Street, Toronto, Ontario

Chimney skedaddles— How to prevent them— A prescription

By Booster Binx

You thought I wouldn't do it, didn't you.
For your especial benefit, just let me tell you, that's just the reason I **am** doing it.

Furthermore, you said that, "All I know about boilers, could be put in a thimble and still be some room left."

For which kind and courteous remark, allow me to thank you heartily. If there is any one thing I like more than another, it's your particular kind of frankness. It has sort of a soothing effect on me. If you keep on saying things like that, I'm liable, to become good humored.
Rather than have such a calamitous thing happen, let's get back to chimney skedaddles.

There's one thing you and I agree on without argument.
Too much heat goes up chimneys.
Too little goes into radiators.

Whenever I see a chimney, to me they are always on the dead run, running away with heat.
They always remind me how most boilers are mostly made wrong.
Even you admit that fact.

Their fire travel is too short.
No sooner do the gases get started on their journey, than it's the end of the line and they have to get off and skedaddle up the chimney.

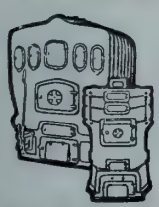
Then again, there are some boilers that are like the Erie Railroad, take so long to get there, that they seldom really arrive.
Such boilers have wrongly proportioned flues.
The draft is sluggish.

To overcome it, you open up the drafts, and force it.
When you force a boiler, you not only force the boiler, but you force heat up chimney.
The gases travel so fast, the boiler doesn't have a chance to grab the heat.
If you slow them down, they stall just like some autos.

Along about March, 1900, the Big Chief said to me one day—"It's the Burnham's long fire travel that makes its short coal bill."

Which thought is the thought I am going to leave with you right here and now.

Next time I catch you hanging around this cigar store, I'll give you a good talking to about "How to Put a Crimp Into That Auxiliary Bunk," for that's the title of my next talk.



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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 — PUBLISHED TWICE MONTHLY

Vol. XIV. — TORONTO, APRIL 15, 1920 — No. 8

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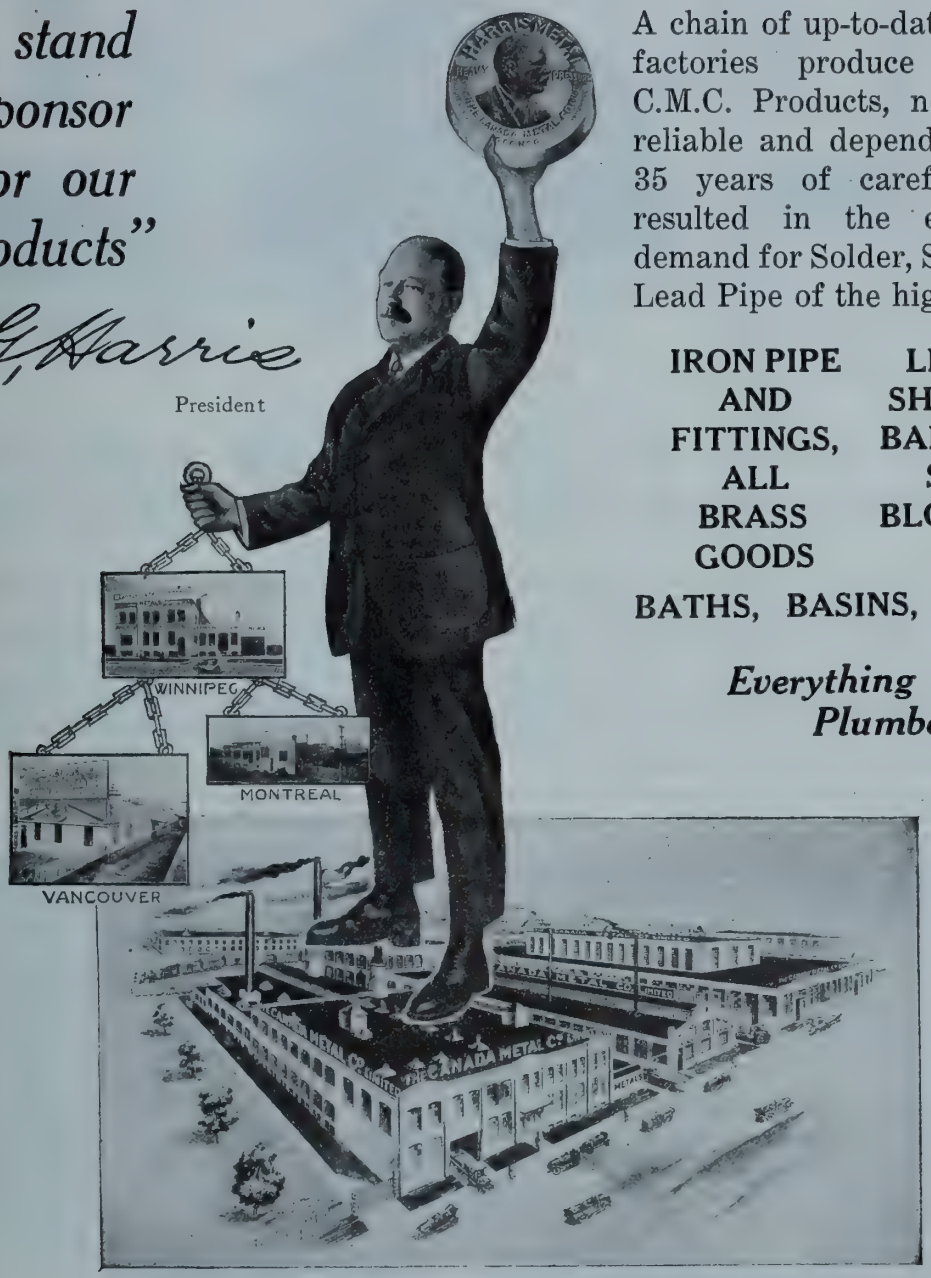

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Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

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Sanitary Engineers in Convention

Ontario Society of Domestic Sanitary and Heating Engineers Hold 9th Convention—Co-operation With Manufacturers to Elevate Trade Conditions—Good Progress Reported—Inspect Installations at Hart House

AT the first morning of the ninth annual convention of the Ontario Society Sanitary and Domestic Heating Engineers, Alderman Maxwell, President of the Canadian Society outlined details of a recent interview of a number of association members with Premier E. C. Drury, Attorney-General Raney and Minister of Labor Rollo, in regard to the Workmen's Compensation Tax. Ald. Maxwell stated that it was planned to increase compensation to workmen and widows, pointing out that under the present regulations fifty-five cents goes to the workman for eighty cents paid by the employers. It was pointed out that in Winnipeg workmen are paid at the rate of 66 2-3 cents. It was also planned to increase allowance to widows by about $5 per month.

Ald. Maxwell drew attention to the recommendation recently passed in London making it incumbent upon employers to give compensation to workmen for time wasted during unavoidable delays such as would be caused by inclement weather. Mention was also made of the proposal to appoint two scaffolding inspectors in Ontario, and it was felt that the necessity of waiting for an inspection of scaffolds would cause great delay and inconvenience.

An important matter further outlined by Ald. Maxwell dealt with the suggestion to form an Accident Preventative Society to work in conjunction with the Workmen's Board and have for its object the minimizing of accidents, and thereby eventually reduce the tax required for this purpose. It was pointed out that for the time there would be a small increase in the taxation in order to meet the cost, but this was said to be an increase of only about 75 cents on each $100 of present taxes. Ald. Maxwell has instructions to form a constitution and proceed with organization, all expenses being paid by the Compensation Board.

Ald. Maxwell stated to the convention that he had written the directors of the Canadian Society and suggested that something be done to co-ordinate the work of the parent and provincial organizations so that the Ontario society would progress more rapidly.

"I am broken-hearted over the Canadian Society and I believe it is a waste of energy to spend any more money on

Photograph showing delegates present at the annual banquet in connection with the Ninth Annual Convention of the Ontario Society Domestic Sanitary and Heating Enginers. G. Clapperton, Toronto, was chairman and others noted at the head table include representatives of the manufacturers, Wm. J. Woolley, of the U.S. Trade Extension Bureau, and prominent members of the society. A good representation of plumbers from all parts of Ontario were on hand.

the master plumbers. We should spend all our energy in Ontario."

The forming of district associations in Ontario was advocated.

"We cannot finance the parent organization on $1 per capita tax, yet it is impossible to ask any more" said Ald. Maxwell. "We will have to increase our membership."

Co-operate With Manufacturers

The question of closer co-operation between manufacturers and jobbers on the one hand and the trade on the other was discussed from the standpoint of elevating the trade in general and increasing the sale of sanitary supplies. Ald. Maxwell was a sponsor for the suggestion to take manufacturers and jobbers into the association, pointing out that they were allowed membership in the Builders' Exchange. It was felt that the co-operation of manufacturers and jobbers would be a help insofar as educating the trade along salesmanship and financial lines was concerned. It was decided to meet the representatives of the manufacturers and jobbers during the season.

The point was brought up that under the charter governing the Ontario Society, manufacturers and jobbers would not be allowed to be members of the society. The suggestion was then advanced that they should join the Canadian Society whose charter could not be affected and they would then have their support in the Ontario Society. Details of the meeting of the manufacturers with the trade appear herewith.

The Executive Committee went fully into all matters on the first day and all committee reports and recommendations received full consideration subsequently, at the hands of the general convention. These reports are reproduced in complete form in this issue.

Civilians on Local Health Boards

The discussion of resolutions put forward by the resolutions committee touched upon a number of matters of interest to the trade. The practice of municipal councils in appointing civilians to local boards of health was taken up, and a motion was adopted to commend the Journeymen's association on steps they are taking to see that experienced plumbers get these positions.

A recommendation was put forward to secure greater co-operation between the Journey's association and the Ontario Society. President Minnes thought much unnecessary trouble could be eliminated by such steps. Another members indicated that insofar as the city of Toronto was concerned the Industrial Council could handle any difficulties arising between the two organizations, and suggested that the Ontario members outside Toronto deal with it. J. H. Cunningham thought the organization would not be able to take action regarding wages as the building trades council had a blanket agreement in most cities regarding wages. G. Clapperton did not think it right that a committee of five men in Toronto should meet the labor committee to make laws. He thought the committee should be representative of Ontario, and pointed out that such a committee would have difficulty arranging meetings. F. J. Sylvester, Stratford, stated that there was a plan on foot in his city to increase wages from 65 to 85 cents per hour and suggested that there should be an organization to look into such matters. Hereupon A. Paddon, Windsor, pointed out that in Windsor they were paying $1.08 per hour and drew attention to the difference in scales, suggesting that a committee could perhaps bring about a uniform rate for the province. On the motion of J. H. Cunningham the matter was referred to the incoming executive.

General Contractor Was Entitled to Membership

A communication from J. Sainsbury, Weston, withdrawing membership because of his entering into the general contracting business was placed on file as a precedent covering such cases.

OFFICERS FOR 1920

President, T. J. Minnes, Brantford (re-elected); Vice-President, J. H. Cunningham, Welland; Treasurer, F. Maxwell, Toronto; Chairman Sanitary Committee, John Wright, Toronto; Chairman Heating Committee, R. Fitzsimmons, Hamilton; Chairman Arbitration Committee, A. White, Windsor; Chairman Legislation Committee, N. Swanston, Toronto; Chairman Apprenticeship Committee, G. Clapperton, Toronto; Chairman Education Committee, J. Haas, Waterloo.

Re Board of Commerce Ruling

Geo. Grinyer, Guelph, asked information regarding returns made on the forms provided by the Board of Commerce covering the point that all trades shall file reports. G. Clapperton replied that the Toronto men had discussed the matter and decided that as they were contractors, the ruling was not applicable to them as a class.

The annual banquet on Friday evening was a happy culmination of a hard day's work in open convention, and the visiting delegates spared no effort to show their appreciation of the entertainment provided by the Toronto association.

The head table seated G. Clapperton as chairman, F. Armstrong and H. S. Wallace representing the manufacturers, J. W. Bruce, Wm. J. Woolley, President Minnes, H. Mahoney, F. R. Maxwell and others prominent in the work of the society. There was a strong representation of delegates from all parts of the province in attendance and a very enjoyable and helpful evening was spent. Details of addresses by Mr. Armstrong, and Mr. W. J. Woolley appear elsewhere in this issue. It remains to be said that one of the notable and outstanding features was the spirit of kinship which had developed between the manufacturers and the trade since their initial meeting of the convention on the previous afternoon.

Visit Hart House

Though there were various reports of the early hour at which the members attending the banquet were dispersed, there was a good representation on hand on Saturday morning to visit Hart House where an inspection was made of the plumbing and heating installations. Under the direction of G. Clapperton who had charge of the work in Hart House, the inspection proved highly interesting.

On Saturday afternoon Wm. J. Woolley gave a very detailed address found on another page of this issue.

Plumbing Business On Cash Basis

Plumbers Urged to Get Cash and Take Discounts—Banks May Soon Curtail Credit

Geo. Gringer, retiring vice-president of the association, gave a brief address to the convention on the subject of collections.

"We should try to get a cash business adopted among the craft," said Mr. Gringer. "In a short time I understand the banks will be closing down on credit and it will be necessary to institute a vigorous campaign of collecting."

Attention was drawn to the plan outlined in the last issue of SANITARY ENGINEER wherein a number of merchants hand their accounts to a collector.

"An account is rendered two days after the work is completed, and the collection fee is very small, at the same time the collector is enabled to make a good living, as he collects for a number of merchants. We get good results under this system in Guelph and we are enabled to take advantage of cash discounts. Each merchant pays $2 per week and 2 per cent. on collections."

Referring further to the plan, President Minnes stated that in Brantford the collecting was done on this basis and all accounts of from $50 to $75 were handled in this way.

"Getting these accounts paid gives us money to use, instead of having to borrow at high rates of interest," said Mr. Minnes. "On handing out old accounts we find the same name is on the books of different business, so we make a ruling that the first account owing is first to be paid."

Reorganize Three Ontario Cities

President T. J. Minnes Recommends Reorganization of Kitchener, Hamilton and St. Catharines—Membership Strengthened by Calls at Provincial Points—Appreciation of Trade Journals—Co-operation is Extended

Report of PRESIDENT T. J. MINNES, before Ninth Convention Ontario Society Domestic Sanitary and Heating Engineers

IT is a year since I have assumed the office of president of your association, which position I have always felt it an honor to hold, and throughout the year have endeavored to maintain the dignity and responsibility that the office is worthy of. Upon accepting the presidency I have resolved, that which had been in my mind for a number of years, namely, that before our Society could take the position or have the influence necessary to make it a success we first must have a membership aggregating a fair average of the best men throughout the province. With this in mind I, with the other directors including our Secretary, entered upon a campaign of reorganization. This we carried out systematically and to a great degree of success.

Your directors have held meetings at the following cities and as well as taking care of Society business, we had open meetings with the operators in view of organizing and bringing them into our society.

On May 12th your directors had a meeting in Hamilton in the afternoon and in the evening met the Hamilton operators. We must confess that these men showed a keen interest in what we had to say and seemed to appreciate and understand our meaning, but did not see fit to join our Society. It may be that the men we met were to a great extent of the old-fashioned plumber type and it is possibly hard for them to modernize their ways. However I would recommend that the incoming executive pay particular attention to Hamilton for it should be one of the best cities in Canada. At the Hamilton meeting the executive endorsed the Henderson Business Service.

Meetings Throughout the Province

Also in May last we visited Guelph and found the operators there in a receptive mood. They not needing any re-organization, we left them a word of confidence

On May 26 a meeting of the directors was held in Kitchener, your president unavoidably being absent. I would recommend that your new directors also give Kitchener a little more attention and encouragement.

On Aug. 14 a directors meeting was held in Brantford. In the evening the directors met the Brantford operators and the visit is now bearing fruit.

On Sept. 25 the directors met in Welland in the afternoon and we had a long session with the operators from Niagara Falls, Port Colborne, Welland, Thorold and Bridgeburg. We were successful in getting applications from nearly every man present.

On Oct. 2nd. the president visited the Toronto Society at a social evening and explained what your directors were doing and gave encouragement to the efforts of those present.

On Oct. 23 your directors visited Chatham in the afternoon and Windsor in the evening. We were reinforced on this

T. J. MINNES, President

occasion by the presence of Mr. Kenneth Allison, of Toronto, and Mr. Russel, of London. The results in these two cities being most gratifying.

On Nov. 26 your directors met the operators on the Highway and laid the foundation for a good district organization. The meeting was at Oakville.

On Feb. 6, Mr. Maxwell, President of the Canadian Society, Secretary Frankland, and myself attended the Ontario convention of the United Association of Plumbers and Steamfitters at the Labor Temple, Toronto. Addresses were delivered by the three above mentioned and I believe that it will be the means of creating a better feeling and a closer understanding in future between employer and employee.

The net results of the above visits and efforts has been some 65 additional members in Toronto and some 45 additional members throughout the province. So by the above you will readily see that our organization is beginning to come into its own. I am satisfied that if your new directors follow out the program along similar lines as your retiring directors, that by our next convention you will have a most excellent organization, and one that will command respect.

The following suggestion that were handed over to the executive for attention have been taken care of as follows :

A Bumper Convention; this convention is the effort and shows the result in this regard.

Re-arrangement of fees on a sliding scale to include manufacturers, jobbers, and contractors; this has been discussed, but to date nothing definite has been done, nor should it be attempted until we have a stronger organization.

The adoption of a standard set of books. There has been nothing accomplished in this regard.

Adopt better cash discounts. We have made no attempt in this matter until our society should be of sufficient strength to handle same.

Standard apprentices working rules. The apprentice committee has handled this in satisfactory manner.

Standard specifications. Nothing has been done.

Pipe manufacturers to adopt standard re-sale price list for pipe. The vice-president took this matter up in Guelph with the Page Hersey people and was unable to get any satisfaction. Your president made an investigation in this regard while in Montreal at the Canadian Convention and was given to understand that nothing could be accomplished, one reason being that there was more pipe sold outside the plumbing trade than in it.

The central office. Nothing further has been done in this regard other than consideration being given it by the Toronto branch of the society.

Restriction of the plumbing trade through legitimate channels—Manufacturer to Jobber to Consumer. The executive have been endeavoring to get a joint conference with regard to this. As it is of very recent date and on account of our lack of strength until now there has been little progress made.

Standard re-sale price on all plumbing goods and standard guarantee. No progress made yet.

A forceful advertising campaign. This matter is under consideration at the present moment.

The open price system. This is in force in a few localities, and we believe is proving quite satisfactory but it is a thing that requires confidence which

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Garnishee Law is Satisfactory Only on a Percentage Basis, Weekly or Monthly

Retail Merchants' Association Objects to Amendment Providing That the Amount of Wages Exempt From Seizure be Increased From $25 to $50 — Merchants Express Opinions on Suggested Changes in Garnishee Law

THE proposed amendment to the Wages Act has been brought before the Ontario Legislative Assembly by R. L. Brackin, M.P.P. for Kent County. This bill will have such amendments before it reaches its last reading that the context will likely be entirely changed. The original amendment as introduced by the member from Kent provided that the amount of wages exempt from seizure or attachment be increased from twenty-five to fifty dollars. This was objected to by the Retail Merchants' Association which, together with a suggestion by another member of Parliament, further amendments have been suggested.

As the Act stands, a man drawing his pay weekly has at the best little above $25 to be seized, whereas the man with a monthly salary of the same amount per week has three times the amount liable to attachment in event of his being unable or unwilling to meet his honest debts. This is considered unfair, both to the creditor and to the man who is paid monthly.

What the Sponsor Says

SANITARY ENGINEER interviewed R. L. Brackin, the sponsor of the Bill. who said: "The bill is at the present time before a committee and I believe I am safe in saying that before it comes before the House again, its context will be radically changed. I am confident that the section in question will read similar to the same clause in the Michigan State Wages Act, that is, a percentage basis will be determined instead of any fixed sum. In consequence everyone is on an equal footing and the merchant is legally entitled to something in cases where he could get nothing previously. The percentage system will be based on the amount of the wage, the number of the family and the amount of indebtedness. Therefore, according to the final proposed amendment, a man may be forced by law to pay weekly a certain proportion of his income until his account is cleared."

SANITARY ENGINEER interviewed a number of merchants in regard to the matter. E. F. Mason, proprietor of two grocery stores in Peterboro, when asked for his comment on the amendment, pointed out that it would not be very hard to make an improvement on the present law. The grocer is the one tradesman, he said, who is most affected by credit systems. His business is to supply the daily necessities of life and his very goodness often leads him into losses that are easily foreseen. We sometimes cannot bear to see a man's family starve, even though we know our chances for getting our returns are very poor. Every year we allow for certain bad accounts which are no more than charity.

Very Seldom Refuses Credit

"If a man is sick or out of work, few grocers would refuse to give him enough credit to keep his family from want and yet we invariably find that the man who has nothing laid aside for a rainy day is the man who when working catches up on his account, and he goes to another grocer and pays cash rather than face the merchant to whom he owes both money and gratuity. So we lose both our money and our customers. Another thing we frequently find is the man who can least afford to carry a heavy account is the one who is most extravagant in his buying. This requires a great deal of tact on the part of the merchant so that he will not offend and at the same time protect himself and his customer from heavy loss and an embarrassing account. Only on very rare occasions do we resort to legal proceedings, although we are rightfully entitled to it. It is too expensive a procedure to be undertaken every time we wish to extract what little over twenty-five dollars a week a man earns. In my opinion, if the new amendment is adopted it will not only be in justice to the retailer—hardware merchants especially—but it will be justice to the working man, in that it puts every man on an even basis. It will also have the effect, to some extent, of making the merchant less fearful of his accounts. As a result some really deserving of consideration will not be refused because of the heavy risks the dispensers of the vital necessities of life have to take when they favor their customers with credit.

"The great trouble in general business has been that the merchant's good nature gets the better of his business principles and his cash register suffers too severely on account of this charity. The retailer is more exposed to this than perhaps any other business man."

Provincial Secretary R. M. A. Dubious

When the first amendment to the present Act was proposed by R. L. Brackin, it met with opposition and disfavor from the Retail Merchants' Association, represented by W. C. Miller, the provincial secretary. Apparently as a result of this representation, the second amendment has been brought forward by the member from Kent County.

"From my knowledge of the present Legislative Assembly," W. C. Miller remarked to "Sanitary Engineer" on the proposed amendment, "I cannot readily believe that they will be particularly looking after the welfare of the retail merchants. The present Act has remained unrevised on the statutes for twenty-seven years. The original amendment would have been very unjust to the merchants who in times of stress have been bankers to the people. If, however, the Government would be prepared to give us legislation that would allow us a garnishee on a percentage basis that would be automatic, weekly or monthly, until the account was liquidated, it would relieve matters for the merchant to a great extent.

"The present law requires the outlay of five dollars for every writ issued and in many cases the returns are hardly worth while. Besides this, it is a very easy matter for a dishonest debtor to evade even a writ of garnishee. My personal opinion is that as a result of the first proposal, we can hardly expect any amendment that would concede so much to the retailer."

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MAKE GARNISHEE LAW OF REAL BENEFIT

The discussion in the Legislature of Ontario of the Garnishee Law will be of interest to the grocers of the Province, as possibly more than any other class of merchant the grocer is vitally affected by the Garnishee Act. That the original amendment providing that the amount of wages exempt from seizure or attachment be increased from $25 to $50 does not meet with much favor by the Retail Merchants' Association is evident, in the expression of opinion by W. C. Miller, secretary of the Ontario branch. It would have been very unjust to the merchants, it is pointed out, who in times of stress have been bankers to the people. Legislation that will allow merchants a garnishee on a percentage basis that will be automatic, weekly or monthly, until the account is liquidated, will be welcomed by the Retail Merchants' Association. Making use of the present law by the average grocer is too expensive an operation to be used frequently. In most cases the returns are hardly worth while.

Education Eliminates 80 Per Cent. of Troubles

Report of K. B. Allison, Chairman of Education Committee at Annual Convention—Volume of Plumbers' Work Decreased by Householders' Efforts and Factory Workmen

Report of K. B. ALLISON, Chairman of Education Committee, before Ninth Convention Ontario Society Domestic Sanitary and Heating Engineers

AT practically all organization meetings held during this term, throughout the western part of the province, educational work by means of Overhead and Business Charts Talks on Selling etc., have formed a goodly part of the program. Then the good work of the price services has been appreciated. Your chairman has also given several weekly trips around the province and in contact with all has attempted to faithfully preach the doctrine of improvement of business methods. More noticeable has been the result in Toronto, where meetings were held two or three times weekly at each of which was a good speaker who brought home some phase of better conditions, and the possibilities of education. I want to place on record the statement that education will remove eighty per cent of trade troubles and urge that any association will find its strongest footing when conducted along those lines.

Practically all associations are formed with the true desire of helping, but soon a feeling seems prevalent to set prices or some such feeling of control, and, I say with all sincerity that when education ceases to be the paramount aim of any association, then that association is positively destined to failure. It is essential that we organizations must either eliminate or else lift up all those who are not capable of earning their just recompense for their labors, but to do so by ruling or commanding means failure, whilst on the other hand to do so by education, even though the way proves longer, is to insure lasting success. In this I speak in a general way. I have seen and heard the troubles of so many associations and all are virtually a result of lack of evenly balanced coordinated thought on money values.

I would suggest that in place of thinking that all work in our lines should be done by licensed or professed mechanics, and often times to the detriment of the broadest thought for public welfare, it would be better to eliminate those, who operating as master mechanics under and by reason of the protection afforded by the established responsible merchant, do work that carries no protection for the public. True, when Mr. Householder does work about his own house he decreases the volume of work and the earning power of those engaged in that particular line. True, too, the factory owner who has plumbing and heating repairs or other work done about his factory by men who are employed for that purpose as part of his staff, he likewise reduces the earning power of all those, legally engaged to operate in that particular line; but these losses are dwarfed in comparison with the man, who having no other obligation to fill than be a resident of a city, by tenancy, pass an examination as to practical knowledge and then purchase the smallest kit of tools possible and take up business. By being really only a journeyman his overhead expenses are taken care of in his hourly wages, and in this way he is able to increase, under the guise of a master's license, so that those who establish themselves and attempt to carry on business, as it should be carried on, are handicapped to the extent of an overhead item based on selling price, of from fifteen to thirty per cent. This other man with no responsibility, has nothing at stake. If the work he does causes an epidemic of sickness, he has nothing to lose, if his carelessness causes fire or water damage, he cannot be forced to pay his just debts. Here then, is the man who creates unfair competition and by such competition instils in the public mind a damnable and unjust prejudice as to the profits made by the legitimate operator. Here is the man who is just a plain floater and it is against this type of man I would aim my legislation and educational work, feeling assured that any such endeavors to protect the trade in this way will, because of its true worth, merit eventually the support of the public.

The platform outlined below is the one which I have tried to link hand in hand with my first efforts:

1. A central office from which trade expansion work would be controlled and launched and carrying with it,

a. Simple bookkeeping and monthly trade audits.

b. Statistical work as an aid to Standardization or Apprenticeship problems.

c. Trade extension or bigger business building, also good-will, advertising, finance.

d. Window trimming and show-room layout for those so operating. Stock lay-out and suggestions for those operating show-rooms.

e. Supplying of speakers or lecturers to trade organizations for the purpose of educating the Craft in salesmanship and also safe business methods.

f. Improved trade stationery, business forms for proper distribution of costs, standard forms that protect all from the present lax methods of charging.

Reminiscences by F. Armstrong

FRIENDLY FEELING OF INTERCOURSE BETWEEN SUPPLY HOUSES AND SANITARY ENGINEERS

Some interesting reminiscences were recalled by Mr. Fred Armstrong, Manager Port Hope Sanitary Manufacturing Co., in replying (on behalf of the supply houses) to the toast to "The Guests" at the annual banquet. Mr. Armstrong quoted some instances of a humorous nature concerning his apprenticeship days, especially in conjunction with work on The Mail and Empire in Toronto where he once became so interested in a newspaper that consciousness of his responsibility did not return until the solder and iron, the heating of which he was awaiting, had entirely disappeared.

Reference to the early days of the Association was made by Mr. Armstrong, pointing out that at the time the 118 master plumbers of the city were all members. The history concerning the subsequent disruption of the organization over a small detail and on to recent events concerning the bringing about of better relations between the supply houses and the trade, was traced.

"We now know the master plumbers want a square deal. What we want is a thorough understanding, the greatest freedom of intercourse and all price considerations on equal parity," said Mr. Armstrong, pointing out that the supply houses were circumscribed by certain business conditions which rendered it impossible for any outsider to dictate a policy (for them) but that they were open to consider any suggestions made at any time from the master plumbers.

Substantial Membership Increase

New Members of Association Number 110 Over Last Year—Total Membership Now 224—Secretary Recommends Co-operation to Make Further Increase—Initiation Fee is to be Charged—Amended Application Form

Report of SECRETARY G. FRANKLAND before Ninth Convention Ontario Society of Domestic Sanitary and Heating Engineers

I wish to briefly enumerate our present membership, which shows an increase of 110 over this time one year ago, and which numbered on April 1, 1920—224. This membership is resident in 44 different municipalities throughout the province and 143 are members of the Toronto committee.

The balance of membership, with the exception of 7, are located in the western part of the province, and thus you will see that the Eastern and Northern portions of the province are practically unorganized. I am more convinced than ever the majority of operators engaged in our trade will never avail themselves of organizations of their own accord, and only by extensive educational methods and the continued holding of local and district meetings between those engaged in the business and the officers of the society, will the desired confidence be created and co-operation secured to weld the Craft into a united organization. That in times of adversity humanity seeks comfort from their fellow creatures, is a fact that repeats itself in history, and so you find it with those engaged in our industry, that when demands are made on them for new agreements, they flock together for mutual protection. Now, if co-operative methods are good at these times, would it not seem right and proper that these same efforts are necessary on the part of all continually to bring about conditions more desirable and perfect than those under which the Craft work at present. That the average operator seems to be content to go along and put up with everything that confronts them, and make no effort to improve or change the existing conditions is to be deplored, because if they would only realize the importance our calling carries with it and how essential it is to the every day life of every community and the absolute necessity of it from a health standpoint, I surely believe they would do more to protect their interests, if not for themselves, then for those who are to follow us in carrying on the science of Sanitation and Ventilation.

I have become convinced that until the Craft commence to seriously give consideration to the question of Province-wide regulations, both as to by-laws in connection with the style of installation and also as to uniformity of wage scale, for properly qualified and efficient Journeymen, with proper apprenticeship regulations, and a central board of examiners to cover the province, both for plumbers and steamfitters in the issuing of licenses, we are not going to create ideal conditions in the industry.

I cannot refrain at this time from saying that I am sure one of the real reasons why the plumbing and heating industry has not taken its proper place in the business world is for no other reason than the utter lack of business knowledge on the part of those engaged in the business, and we shall not create a healthy condition of affairs until such time as every sanitary and heating engineer operates his business from a commercial standpoint, instead of a mechanical one, as do the majority in our business to-day; until he adopts proper accounting and cost records and learns from figures of his own making what constitutes cost and where profit comes in. It is utter folly to think that a man can leave the ranks of the Journeyman without any business education and be expected to successfully operate our business or any other. It therefore behooves us to consider some means whereby certain standards shall be set as necessary before anyone would be recognized as an operator. I cannot conceive of why any person or persons should be permitted to upset an industry and cause monetary loss that must then be borne by the entire industry through ignorance, whether innocent or otherwise.

All delegates appointed at the last annual meeting to attend the Canadian Society convention in Montreal during June 1919, did so with the exception of Mr. Geo. Clapperton who appointed Vice-President Grinyer to act in his stead. Your delegates took a most active part in the convention and were accorded the honor of having our Mr. F. R. Maxwell elected as President and Mr. Harry Mahoney as Vice-President and G. Frankland as Secretary-treasurer. Messrs. John Wright and Geo. Clapperton were elected as Chairmen of Committees, our own President being appointed provincial Vice-President for Ontario. The Convention for 1920 was awarded to Toronto and will be held on June 8th, 9th and 10th.

A suggestion for the discussion of the advisability of appointing Directors for a three year period, and also the question of compiling a directory of membership were asked to be considered.

In the subsequent discussion a recommendation that the directors be elected for a period of three years instead of one was deferred until the convention of 1921. A recommendation that an initiation fee be charged in addition to the annual fee of $10 on the basis of an amended form of application was adopted on the motion of W. Mahoney, Guelph, J. H. Cunnigham, Welland, being the seconder.

OPPOSE AMENDING PLUMBING BY-LAW

Montreal, Que.—At the last meeting of the Chamber of Commerce the committee on municipal affairs reporting in regard to an amendment to by-law No. 318, which modifies plumbing requirements in building, pointed out that in the opinion of the committee, this new amendment would have the effect of further augmenting the cost of building and of repairs by necessitating the taking out of a license by every plumber as well as a certificate of competence, and in view of the fact that, in their opinion, the public is protected sufficiently by existing regulations, it was recommended that the City Council be requested not to adopt this amendment to the by-law in question. The recommendation was adopted.

CRITICIZE KINGSTON HOSPITAL SEWAGE DISPOSAL

Kingston, Ont.—Representations are being made to the Dominion Government regarding questions of proper sewage disposal at Sydenham Hospital for returned soldiers. It appears that the sewage from this institution has been emptied into the harbor since last Fall without being treated in a septic tank. The Board of Works gave the Dominion Public Works Department permission to empty the sewage into the harbor on condition that it be first treated. It appears, however, that this condition was not carried out, the disposal plant never having been completed, and the health authorities want to know why.

SCHOOL FOR OUTREMONT

Montreal, Que.—At a meeting of the Board of Protestant School Trustees of Outremont, a resolution was passed authorizing the borrowing of $275,000 for the purpose of building a new school on De L'Epee Avenue.

BIG BUILDING YEAR FORECAST FOR KITCHENER

Kitchener, Ont.—Despite the high cost of building the coming season promises to be a bumper one. The total value of new buildings for which permits were issued during the month of March is $319,690; for the same month of last year the total was $21,880.

WATERWORKS SYSTEM FOR SCARBORO TOWNSHIP

The Railway Board has approved plans for the Scarboro Waterworks as submitted to the council at the last meeting. This announcement was made at the last meeting of the Scarboro Township Council.

Big Sanitary Extensions Planned

Provincial Sanitary Engineer. F. A. Dallyn, C.E., Outlines Work of Health Board—Extensions Valued at $5,500,000 Planned This Year—Immigration and Industrial Development Demand Better Sanitation—Typhoid Mortality Reduction Saves Province Four Million Dollars Annually

F. A. DALLYN, C.E., Provincial Sanitary Engineer, delivered an instructive address to the convention on the work of the Provincial Board of Health.

"In 1911 the Legislature saw fit to give very extensive powers to the Provincial Board of Health," said Mr. Dallyn. The Board was given these power to enquire into the sanitary needs of Ontario municipalities and recommend improvements. If the municipality was lax, the Board had the power to force matters. These powers were with special reference to the installation of sewer extension and waterworks. The Board holds the whip hand and its powers have been widely used.

"Since 1913 the Board has employed the full time of a Provincial Sanitary Engineer. Since that time the Board has surveyed boundary waters in Ontario as to their suitability for water supplies. This plan has given us information as to where the danger areas are.

"Since 1912 the work of the Board has resulted in a reduction of typhoid mortality from 25 per 100,000 to 8 per 100,000. This record is better than in the registration area of the United States. The typhoid rate in the Province of Quebec is from 25-30 per 100,000, though they are taking similar steps to reduce this.

"Field laboratories and branch laboratories have been established to improve the supervision of different centres. In 1914 the Provincial Board had authority to appoint seven district officers of health to visit all municipalities, and make recommendations for improvements. As result there has been a marked improvement in sanitation in the smaller towns.

The Fly Nuisance

"There has been a marked decrease in the fly nuisance since active measures have been taken by the Board. Sanitary conditions in schools and slaughter houses have also been improved. Sanitation lately has become more professional, our ideas with reference to the control of disease have changed very much in the last five years. The information gathered has given us an appreciation of the particular routes through which contagion is carried, and we can therefore control it and thereby reduce the mortality.

"Housing programs initiated in the past three years have opened the eyes of the Government to the fact that housing to-day requires improved sanitation over houses of a few years ago. Various efforts have been made to improve the type of closets and decrease the fly nuisance. It is agreed that the only way to handle the housing problem, from the standpoint of sanitation is to give them water and sewerage facilities.

Big Extensions for Municipalities

"Ontario municipalities are requesting extensions of water connections to the value of $5,500,000.00 this year, and a small proportion of this is for Toronto city.

"Some years ago the Provincial Board was approached with regard to the possibilities of making uniform regulations for plumbing throughout the province, but no definite action was taken until two years ago, at which time we set to work and drafted regulations to meet the situation and then invited the consideration of members of your Ontario association.

"It is the duty of your association to advise the Provincial Board re plumbing matter and to suggest amendments to the regulations. These regulations are now in the hands of the Government and they will be very seriously considered. The particular advantage of such regulations will be to make it much easier to bid on work in the municipalities. Assistance will also be given manufacturers to standardize equipment. The attitude of the Provincial Board regarding sanitation is that we cannot do too much. The intention this year is to send out field parties to determine the number of unconnected premises in the various municipalities and enforce the regulations. An amendment has been suggested permitting villages to order people to put in sanitary facilities.

Immigration and Industrial Department

"In the extension of immigration and the development of industry we are going to experience a desire for better living conditions, and there seems to be a tendency for industries to go into smaller places and these municipalities are finding out that their water systems have to be extended. This is resulting in great activity. In those centres where we feel there is danger from water supply systems, we are pushing the municipalities to put in improvements. Municipalities on the Ottawa River—Renfrew, Arnprior, Hawkesbury, etc.—all have their purification plants to-day and we are trying to get Brockville, Kingston, Sault Ste. Marie, and other cities, to undertake these improvements.

When local improvements are thought necessary, Mr. Dallyn urged the sanitary engineers to secure action through the citizens or townspeople, as this process would be more effective than merely drawing the attention of the Government to the condition.

Speaking further regarding typhoid mortality, Mr. Dallyn outlined that the efforts of the Board had reduced the number of deaths from this cause by 400 per annum. He pointed out that the victims generally died when at their most productive age when their value is figured by statisticians at $5,000 each. Figuring that there are fifteen cases of typhoid to one death, the Board figures that this saving is equal to a monetary saving of $4,000,000 per annum to the province.

$12 PER DAY FOR PLUMBERS

A report from Birmingham, Alabama, states that journeymen plumbers there have served notice that they will demand $12 per day, with double pay for overtime, Sundays and holidays. The master plumbers say the demand will be met, and the additional cost passed on to the public.

The more skeptical may have their doubts but, coming from Alabama, it is at least a good "coon" story.

CONVENTION DELEGATES

Among those present at the annual convention of the Ontario Society Domestic Sanitary and Heating Engineers were the following :

President, T. J. Minnes, Brantford ; Vice-President, G. E. Grinyer, Guelph ; Ald. F. R. Maxwell, President of the Canadian Society; Treasurer, T. Maxwell, Toronto; Secretary, G. Frankland, Toronto; A. Purdy, Toronto; F. Gentle, Toronto; Mr. Bloom, Hamilton; J. H. Cunningham, Welland; A. Paddon, Windsor; H. Mahoney, Guelph; G. Clapperton, Toronto; J. Wright, Toronto; F. Sylvester, Stratford; K. B. Allison, Toronto; G. Stewart, Hamilton; Chas.Avery, Hamilton; Mr. Arthur, of Drake Avery Co., Hamilton; R. E. Belyea, Toronto; C. R. Hagen, Guelph; W. H. Booth, Toronto; H. White, Brantford; R. W. Chapman, Toronto; J. Ingram, New Toronto; J. Hainsworth, Kitchener; Mr. Wilkinson, Ft. Erie.

No Loss From Lack of New Building

Work of U.S. Trade Extension Bureau Outlined by Authority—Developing Business From Existing Buildings—Craft Needs Salesmanship to Build New Business — Contractor is the Only Weak-Kneed Man in His Shop—Sanitary Engineer is Not a "Thief"—Give Facts Concerning High Prices

WILLIAM J. Woolley, representing the United States Trade Extension Bureau, with an international reputation on subjects pertaining to trade matters among sanitary engineers, gave an outline of the work of the Bureau at the annual banquet.

As demonstrating the position to which the plumbing business in the United States has been elevated, Mr. Woolley introduced his address by reciting the following incident, which happened in Detroit the other day: "A journeyman came into a sanitary engineer's shop and asked for a job," said Mr. Woolley. "He said he was a thoroughly experienced mechanic and was offered $1.50 an hour. This he refused and went out to the street to look the shop over from the outside. He shortly returned, stating that his wife needed a new fur coat, so guessed he would take the job temporarily. His chief objection was that there was no convenient place to park his car. After looking him over, the master plumber said: "You stated you were an experienced mechanic, but you are just a dub. Our men have chauffeurs to bring them to work and call for them at night.'"

Trade Suffers From Lack of Building

Continuing his address, Mr. Woolley stated that at the outset of the war the craft had suffered a great deal, because of the lack of building. "Manufacturers, jobbers and contractors had a conference in Chicago to devise means to keep the industry going. Our whole thought turned to the possibilities of business from existing building. We prepared a programme and on its completion we were called to Washington and told that there was 'nothing doing,' as they had to build battleships and needed the materials we would require. After two or three months we started a propaganda. Our trade was unprepared, however, because we were not salesman and not qualified in the art necessary to build business. We worked out a plan to teach contractors how to build business for the future. We found great possibilities and the greatest difficulty was to find a place to stop, for every day new angles developed and we required much extra help in our office. The Bureau is a clearing house, through which the ideas of the men in the trade can be gathered and the better ones sent out as printed information. We received, in this way, 200 different kinds of bookkeeping systems used by plumbers in the United States, who number 23,500. These forms we went into carefully and have compiled a bookkeeping system that gives the information the plumber needs. No bookkeeper can cheat with this set of books. He cannot fix the figures, because it works several ways to prove the balance. We have taken all phases of business and worked out the best forms for estimating radiation, heat loss, etc. There are four steps in our efficiency course—overhead cost, plumbing estimates, heating estimates, accounting. We sell these forms at cost to the contractor. It is our purpose to show the contractor how to build an organization within his shop. The contractor is the only weak-kneeed man in his office. We are going to make him money."

Charting System for Credit

"At the present time we are starting the charting system, charting out what credit means and how to protect it. This has developed within the last four years and the only way to show how to develop business in the right way.

"In preparing the various books we have sent out re overhead costs we got all the information the Government had and read up 186 authorities on the question. We have reproduced figures from 1,496 shops re overhead expenses. We issue a monthly service bulletin to inject pep into the trade. This deals with lines that might be sold during the coming month, showing windows, advertising copy, circular letters, etc. There are ten people in our organization and we have a mailing list of 14,000. The Bureau is financed by manufacturers and jobbers, who pay one-tenth of one per cent. of sales. We plan to put out field men to work in closer co-operation with the trade. Next year we are going to give the journeymen a line of propaganda. The public has a false idea of the contractor and we are largely responsible for this."

Argument re Higher Prices

Referring to prevailing high prices, Mr. Woolley pointed out that the tradesman should show their real position to customers and not let the impression go out that they are thieves. He indicated that in many cases a tradesman was only working half time, taking the year as a whole and that therefore if he was getting $1.00 an hour it would only be the equivalent of $4.00 a day.

"The public will have to be educated," said Mr. Woolley, "and we are trying to show the journeyman how to deal with these questions."

London Pot Still Boiling

Unqualified Plumbers Afraid of Regulations—Work Being Held Up Pending Settlement—Sanitary Inspector Young Maintains He is Right—Anxious for Test Case

LONDON, Ont.—"As nearly as I can size the situation up the whole trouble that has arisen in connection with the city plumbing by-laws may be laid at the back door of the men in the trade," said Plumbing Inspector James Young to SANITARY ENGINEER. "There are a number of men who are not fully qualified sanitary and heating engineers and they are afraid of the regulations."

In the meantime the plumbing inspector is in a most awkward position, and so are the men in the trade. Since the council suspended the plumbing by-laws only four permits have been issued by the inspector. This does not mean that plumbing work has been suspended because some of the men who are opposed to the by-laws are going ahead with all kinds of jobs. In a number of cases the larger plumbing firms are refusing to proceed with work until some decision is arrived at regarding the by-laws. They will undertake no work, they say, until they know where they are at, as expensive alterations might be required if installations were made and then found not to be in accord with the law. The other plumbers declare they are willing to take a chance on this, and if rumors are correct many installations are being made of the kind that took place before there was any plumbing by-law. These may all have to be torn out shortly.

Chairman Saunders, of the Board of Health, who ordered Plumbing Inspector James Young to proceed as usual with his duties the morning after the council had suspended the plumbing by-laws, still maintains that he is absolutely right. To SANITARY ENGINEER he gave it as his opinion that Inspector Young is responsible to the Board of Health and the Board of Health is responsible to the Provincial Board of Health.

In the meantime the situation is

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Plumbers' Misdeeds Built Competition

Big Possibilities for Trade Outlined by Wm. J. Woolley at Convention—Manufacturers Should Fully Appreciate Importance of the Trade—Stop Hiding From Business and Organize—Standardizing Brass Goods, Soil Pipe, Etc., in States for Quicker Turnover

GOING more into detail in regard to the work of the U.S. Trade Extension Bureau, and pointing out how its findings could be applied to the trade in Canada, Mr. Wm. J. Woolley addressed the convention on the closing day of the session. The address is replete with facts and definite information which will be of great value and is therefore reproduced in full as follows:

"In view of your steps to act together with the manufacturers, our trade extension ideas will be timely. Our people in the United States realize that anything that can be done to help the contractor is going to help everyone in the business because it makes no difference what kind of an organization the manufacturers have, what salaries they draw, what money has been spent for advertising, after all there is one link which is most important and that is the weakest or strongest link, and the chain is no stronger than the contractor because he must sell the goods. He comes into contact with the public and he must get rid of the goods.

"In a survey we made recently, information was secured that the Electrical Society by following trade extension ideas has during the past two years made three thousand electrical shops into merchants. Their efforts have increased the price of electrical appliances more than $300,000,000 of which $90,000,000 was on residences alone. There are 23,500,000 homes in the United States, and less than 5,000,000 homes had plumbing in them when recently investigated. We determined that it would take all the master plumbers in the United States 10½ years to figure the job alone. It would take 28½ years to make the installations if every journeyman in the United States worked on the job.

Much Work in Existing Buildings

"There is much work to be done in present buildings in which the plumbing needs to be altered, and this would mean five times as much work as we can possibly do if no new buildings were constructed. How are we going to supply the demand we create. Competition takes up a great deal of time and costs money. We figure we can produce thirty to forty million dollars of sales a year if the master plumbers get away from competitive work. Jobbers let four or five men figure a job. We should get them to develop new business by advertising, circularizing, etc., to get away from competitive work. Too many men fool themselves into the belief that they have low overhead costs when they really have no established percentage which will allow them a fair profit. This is one of the reasons for the need of trade extension."

A plan outlined by Mr. Woolley, as adopted by the Bureau on information from the trade was follows: The management of the business was divided into four sub-heads of Finances, Stockman, Salesman, Production. Each in turn was sub-divided into a number of sub-heads which will be taken up individually.

"Financing is the first step in business," said Mr. Woolley. "Before you can handle finances you must have a definite plan. With most contractors the definite plan adopted is not broad enough. The field is there and will have to be developed according to the extent of his plan. He should know the possibilities, and just how he is going to attack the plumbing business. Under this heading is Personal Standing, and this is always taken in consideration by anyone extending credit. Friendship should be built at all times because it is a valuable asset. I often find travelling men lying around stores. This is not the way to build friendship. The traveller has a territory to cover and if you really want to build up friendship send him along on his way. He can do you many favors and his friendship is valuable, but you are adding to the cost of the goods and tearing down of efficiency by delaying him unnecessarily.

Business Judgment and Possibilities

"Business Judgment:—This is one of the most important things in borrowing money. In the past credit houses have granted credit out of all proportion. In the next two or three years credit will be harder to get. If your business judgment has been bad in the past you will have to show it has improved. Business Possibilities:—You ask two-thirds of the contractors as to possibilities and nine of ten will tell you if they had a dozen sons none of them would go into the plumbing business. On the other hand there are so many possibilities that not a contractor in the world need figure in competition with another."

Develops Farm Business

" I visited a shop in a town of 2200 in Iowa recently. A plumber in that town worked sixty-eight journeymen and I was interested to see where he got his business. The building occupied by this man stands out prominently, being the only one of that height in the town. He did not depend on the town for business but went into the country. He had left a large city to go after the farm business. During the first two years he nearly starved but afterwards he sold the farmers on the idea of plumbing and heating and he gets a very good price for his service to the farmers. Of one type of water system alone he sold 688 during last year. Possibilities are every place and any place.

Work Your Cash

"Cash—Work your cash. The average contractor has too much money invested in his business. This should not be any greater than we showed in our overhead costs book. The remainder of his money should be invested in other things, and should be scattered so his eggs will not be all in one basket. You should have some money borrowed at all times. You can borrow it at 7 per cent. and put it out at returns of 10 per cent. This is the way to develop business and make money.

Location

"Location:—This has everything to do with borrowing money. I know one case where a man got $10,000 loan on the lease of a prominent location for business. On moving to a side street the bank withdrew the loan because the possibilities were not there. Do not hide from the public. To-day the plumber in any city is generally found on the side street hiding from business. When in Wichita recently, I stopped eighty-three people on the street, the majority of whom had lived there all their lives. None of them knew where a plumbing shop was located. This is a city of 50,000 population, a good business centre, with lots of money, but the plumbers were hiding from business. That is why there was $90,000,000 more in phonograph records sold last year than the total sales of plumbing and heating material. There are more auto' lines sold by over three hundred millions of dollars than of plumbing materials. They are advertising, use show windows, etc. It is a case of exposing oneself. The president of the United Typewriter Company tells a story explaining what is meant. A man was working a certain city for the company and had gone stale on the job. The president told him he was going to fire him and re-hire him again at a salary and commission paying him five cents for every call he made. The salesmen immediately went to one of the biggest office buildings and merely put his head in at each office door and

Resolved by Canadian Society of Domestic

Retailers Should Be

THERE are master merchants the same as master mechanics—the men who know their business and who put their knowledge into practice in serving the public.

The master merchant studies the requirements of his customers and endeavors to meet them ; not alone for his immediate gain, but in the interests of the plumbing trade in general. He realizes that his future business depends largely on the attitude of the public to himself and to the plumbing trade.

Efficient, painstaking service, together with goods which he is able to stand back of, will obtain the desired results.

Quality Always Pleases.

The Port Hope Sanitary Means Efficiency.

Sanitary and Heating Engineers that

Master Merchants

AT THE recent convention of Sanitary and Heating Engineers in Toronto it was urged that retailers become Master Merchants—that they use better business methods in their accounting, book-keeping and selling.

Add to these the handling of quality goods and you make a strong combination which *will lead to success.*

Port Hope Sanitary Enamelware

meets public approval—goods which you can stand behind with your personal guarantee of quality and service.

Our "Roughing-in" booklet which we have prepared is most complete in every detail and will be of great assistance to you when estimating and installing.

It's Yours for the Asking.

Port Hope Sanitary Mfg. Company, Limited

Factory:
PORT HOPE, ONTARIO
TORONTO SHOW ROOMS
119 King St. East

WINNIPEG OFFICE
405 Tribune Bldg.

Head Office:
ROYAL BANK BUILDING, TORONTO
MONTREAL SHOWROOMS
234 Beaver Hall Hill

HALIFAX OFFICE: McCurdy Building, Hollis Street

"Roughing-in" Booklet Are You Using It?

asked if they wanted to buy a typewriter. At the end of the month he had sold eight machines. His success was due to exposing himself. We can do the same in the plumbing business

Financial Rating Important

"Ability to pay:—Our bankers and friends want to know this. If the banker figures you will not bring the money back you will not get it. "Financial rating. Too many master plumbers refuse to give proper rating so that his standing may be known. The man who formerly ignored a rating is now at a point where he cannot get material because they are paying attention to the man who has discounted his bills. Ten per cent. of the contractors in larger cities have been forced out of business because they cannot get materials.

"Collection. This is the next consideration after selling. The Bureau has a law proof contract wherein materials supplied are made personal and movable property enabling it to be held as rental and therefore subject to collection. But without proper accounting you cannot hope to make proper collections. The quicker you get your bill out to the customer the quicker you will get your money.

"Cash Discounts: Many contractors come to the conclusion that cash discounts is the way to get the money in. We give 5 per cent. discount for cash paid into the store but this should not apply to cheques. We make them pay us cash and come in with it, so it is 5 per cent spent on advertising.

Buying—Quality and Quantity

"Buying. The first thing in buying is quality, not quantity. If you are unable to fix in your mind how an article shapes up you are not a good buyer. In regard to quantity it is regrettable that nine of every ten contractors overbuy and do not get the proper turnover in the year. Markets:—I believe most contractors are reasonably familiar with markets. The average plumber is a good buyer when it comes to price. Turnover:—If you cannot get the proper turn over your business is not going to pay as it should.

Selling—Display

"Selling:—Display is the important factor. The eye has 40,00 sensations and through it you can sell more than in any other way. People seldom buy from hearsay or pictures. You are teaching the customer to buy from mail order houses when you teach him to buy from pictures and catalogs. Showrooms are a thing given little consideration by the master plumbers as compared with years ago when good showrooms were operated. Twenty years ago the showroom idea was condemned and many got away from it. The trouble was the plumbers of those days filled beautiful showrooms with good stock and then sat down to wait for business. That condition represents a good tool lying idle.

"When the public receives your bill and you have not a proper place of business they feel you are only rendering a certain service of labor and are not justified in charging a high rate per hour. They do not figure you have any overhead costs because you do not operate a showroom."

At this point Mr. Woolley recalled his first days in the plumbing trade at which time his competitor had a remarkable outfit worth about $50. Mr. Woolley pointed out that the men in the trade at that time had no visible assets and that it was too easy for others to get into the business. His competitor had a rubber tired buggy and Woolley's ambition had been to get a buggy too, not necessarily to make a successful plumbing business.

"Others will not be so desirous of getting into the business if they see it takes some big visible assets to do it," said Mr. Woolley. "The jobbers have showrooms and make them pay. When you take a customer to the jobber's showroom you act as a salesman for the jobber without compensation because the jobber will get the order whether you get it or not. The result is that the customer has the idea you and the jobber have got your heads together. Mystery confronts him and he calls up a second plumber and that one cuts the price because he knows he is not the first one approached. A third one is called and each quotes a little lower than the other. You have taught the owner to go out and build up competition for you and he has done what you told him to do. Do business from your own place. Be your own master and you are going to get somewhere.

"Advertising:—John Wanamaker said advertising was no game for a quitter. It is like firing the furnace at home. When you quit firing the temperature goes down. Advertising does pay and is necessary to sell more goods. Circular letters should be used, but they are not worth anything unless your mailing list is up-to-date.

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REORGANIZE CANADIAN CITIES

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must be established before this can be a real success.

Resignation of London Members

An unfortunate occurrence has happened in our society which should be dealt with at this convention and if possible have our members use more judgment in professional etiquette. Through the invasion of London by a certain Toronto firm, without the courtesy of extending any professional etiquette whatever, we have had the unpleasantness of receiving the resignation of our London members. I do not wish to pass judgment on this matter in my report, but think this question should be brought out on the floor of the convention.

Your executive saw fit to endorse the Henderson retail business service, and that it should be fitting also to endorse ALLPRISER as a cost service. The trade has reaped wonderful benefits from these two systems and the gentlemen who have inaugurated them are to be congratulated as they have done a wonderful service.

Sub-Directorate

In looking over the conditions as they exist in the province and knowing the needs of the trade, I believe it advisable to establish sub-committees or directors as you wish to call them, in different sections of the province. Or, in other words, in different sections get your membership into groups that could meet periodically, exchange views, ideas, suggestions, create good will and a better feeling. As a suggestion you might take the Niagara Peninsula as one section. Toronto-Hamilton Highway as another; Brantford, Galt, Preston, Kitchener, Guelph, Stratford in another; London, Windsor, Sarnia, as another. This idea has appealed to me very strongly and should be formulated by your incoming directors.

Extend Appreciation to Trade Journals

Your executive from time to time has contributed articles to SANITARY ENGINEER and other trade journals with an endeavor to reach the ear of the trade. We are very thankful to these journals for their kindness and co-operative spirit shown for the welfare of our society. It might not be out of order right here to suggest that these journals rearrange their mailing list so that their respective journals would reach the home of the subscriber rather than his place of business.

The President's report concluded with an expression of appreciation to the officers of the past year for their co-operation in the work of the society.

Subsequent discussion of this report resulted in a resolution being adopted on the motion of J. H. Cunningham, Welland, to take steps to re-organize Kitchener, Hamilton and St. Catharines.

W. Mahoney, Guelph, moved that emphasis be laid on the fact that after July 1, 1920, the laws demand that all firms keep a complete set of books.

Regret was expressed at the action of the London members of the Association who have withdrawn their membership because of the fact that certain Toronto firms went to London and engaged in business without displaying sufficient professional etiquette to consider the situation in conjunction with the London members.

Drastic Reform to Elevate Trade

Manufacturers to Co-operate With Plumbers—Important Decision at Convention—Manufacturers Had a Plan — Committees Will Decide on Further Steps

WHAT is perhaps the most important and far reaching accomplishment of the 9th convention, is the establishment of a feeling of necessity for co-operation between manufacturers and supply houses on the one hand and the Craft. In the interests of the trade a number of leading manufacturers and supply house men were invited to a special meeting during the convention and the whole question was gone into very thoroughly. Among those who met the Ontario Society were: Mr. Fred Armstrong, manager of the Port Hope Sanitary Mfg. Co.; H. S. Wallace, Standard Sanitary Mfg. Co.; E. E. Ratz, Forwell Foundry Co., Kitchener; F. McLaren, Galt Brass Co.; F. M. Wilks, Cluff Bros.; M. J. Quinn, National Equipment Co.; E. J. Stevens, Empire Mfg. Co.; C. L. Rook, Page-Hersey Co.; H. S. Harwood, James Robertson Co., Ltd.; Geo. Fisher, Canadian Brass Co.; J. E. Hutchinson, The Mott Co., Montreal.

Introducing the subject, President Minnes stated that the idea of the trade was that a bigger demand could be created for the lines manufactured by the firms represented and that the manufacturers were not being backed by the best retail salesmen the manufacturers could get, namely the master plumbers. Mr. Minnes offered the best co-operation of the trade to elevate business conditions and by encouraging plumbers to put in good displays, to encourage a greater sale of better quality goods than in the past.

"To-day," said Mr. Minnes, "the plumber is not so interested in the quality or class of goods he sells as he is of getting a turnover."

F. R. Maxwell, President of the Canadian Society, stated that he had felt for years there should be this co-operation. "We are looking for a forward movement. To-day we have a better class of men in the association than before and these would make splendid salesmen for the jobbers. No longer can individual master plumbers put forward individual propositions — to-day everyone must benefit."

W. Mahoney, Guelph, assured the manufacturers that the trade had no selfish interest in calling the meeting. "We want the plumbing fraternity to encourage the sale of better quality goods, and every jobber's representative should have equal prices."

Not a Shock to Manufacturers

Mr. H. S. Wallace was the first speaker to reply for the manufacturers and he assured the convention that the matter had not come as a shock to the manufacturers because they had some months ago drawn up propaganda with the same idea in view.

Mr. Fred Armstrong took up the cudgels and referred further to the plans formerly outlined. "The calibre of the members of the association has improved," said Mr. Armstrong complimenting the association on the fact, "we believe it would be a good thing for the jobbers to live up to established prices. We knew we could not get better salesmen than the master plumbers for you have a knowledge of the goods. However, it would be difficult to follow out the program suggested among the manufacturers as they were not full developed and might obscure the idea in mind."

Mr. Armstrong gave information concerning the plan which had been formulated, in which provision was made for the expenditure of $25,000 during the first six months. If the campaign were successful it had been planned to spend $100,000.

Hereupon Mr. Fisher stated that at the time the propaganda was outlined the manufacturers did not expect to get the co-operation of the master plumbers. "We will heartily support any movement to elevate the appreciation of the goods we make," said Mr. Fisher on behalf of the company he represents.

President Minnes pointed out that the manufacturers were overlooking their best sales force, and in reference to the question of financial assistance in proportion on the part of the trade, mentiond that as there were many operators in the province who were not members of the society, that no provision could be made for financial assistance, suggesting that the manufacturers were the ones to benefit most and they could charge the expense to advertising and overhead.

"Suppose we raised the money for an advertising propaganda, what would you do in the absence of financing?" asked Mr. Armstrong.

Educational Campaign

"With your assistance we would carry on an educational campaign to instil into the trade the idea of being merchant plumbers. To-day we have insufficient qualified mechanics. If we could use our men to put in new goods instead of repairs we could overcome the shortage of labor. It is a false economy to repair, and this is one of the most important phases of the question," replied Mr. Minnes.

"Plumbers are not business men as a class" added Mr. Maxwell, " and educating the Craft, will enable the manufacturer and jobber to get their money more regularly."

Mr. Wallace assured the trade that a financial contribution was not sought, but suggested that they could use their energy in forwarding circulars and making use of other publicity suggestions such as lantern slides, etc.

An outline of the plan discussed some time ago by the manufacturers was outlined by Mr. Fisher. This included the stirring up of new business from rural districts and farmers, enlisting the support of the plumber and making him a salesman, developing of business from old buildings in the absence of new building. Mr. Fisher remarked that the plan was not carried out because of the absence of support from the master plumbers and also from the fact that there was not sufficient enthusiasm to raise the fund required.

Manufacturers Had a Plan

"It was our intention to pool the advertising appropriation and use copy not mentioning names. It was planned to use the trade papers and best newspapers. A weekly distribution of literature through the master plumbers was also planned, the plumber being asked to supply envelopes, postage, etc. There was much discussion regarding the methods to be adopted, and it was decided to publish books giving educational matter. The plumbers thought there was some deep laid scheme when approached on the matter," said Mr. Armstrong. "There would be no use advertising unless the kind of goods and the price could be mentioned. There are several prices used by the plumbers, the repair man has one price and the man tendering on a house has another. Secrecy will have to give way to publicity."

In reply President Minnes declared that there was less trouble regarding prices to-day than ever before and declared the society's willingness to meet the manufacturers and decide on prices providing for a reasonable overhead and reasonable profit. It was suggested that through organization a standard cost sheet might be compiled.

The question of legality in regard to the price discussion was brought up and it was agreed that the matter would have to be handled diplomatically to avoid any illegality.

The discussion was terminated by a decision to appoint a committee of six representing each side and to give them a free hand in deciding upon the best means to bring about the desired co-operation. Election showed the members of the committee appointed by the convention to consist of the following: T. J. Minnes, Brantford; J. H. Cunningham, Welland; A. Paddon, Windsor; H. Mahoney, Guelph; F. Maxwell, Toronto; G. Clapperton, Toronto.

Plumbing Legislation Reviewed

Extensive Survey of Provincial Sewers Necessary—Health Bodies Should Have Control of Plumbing—Should Not Appoint Aldermen to Local Boards of Health—Discourage Flat Plumbing Rate for Apartments—Licensing and Regulating of Steamfitters—London's Action re Plumbing By-law

Report of J. WRIGHT, Chairman of Sanitary and Legislation Committee to Annual Ninth Convention Ontario Society Domestic Sanitary and Heating Engineers

"AS chairman of the Sanitary Legislation Committee of your Toronto committee, and being in direct touch with provincial authorities, regarding the enactment of our proposed plumbing regulations for the province in amendment of Schedule B of the Public Health Act, I beg to report progress.

"For your information I include the following extract from the report of the Provincial Sanitary Engineer, Mr. F. A. Dallyn:

"The requirements of the Housing Commission with reference to the Government loan has directed the attention of many of the smaller municipalities to the need of sewers, and this in turn has shown to the Board the great need for an extensive survey of the province to determine to what extent municipal sewers are being taken advantage of and in what way portions of the municipalities can be improved by such services. It would appear that the smaller municipalities and housing generally cannot be better served than by the Board assisting them very directly by engineering services and in the consideration of their drainage and water supply problems.

Need For General Plumbing Regulation

"This also appears to be a question. It is the question of plumbing. There is very decided need for a general regulation respecting plumbing for the whole province, subject to amendment by the municipalities now having regulations in force, such as the city of Toronto. The rural areas and many of the smaller towns are being very much exploited by unscrupulous supply houses and the character of the work is so inferior that its replacement is only a matter of a few years. A provincial regulation would overcome a great many of the difficulties now experienced and would insure a satisfactory type of equipment and fittings for the rural as well as the whole organized urban municipalities. Plumbing has until very recently been considered one of the paramount health problems. Lately there appears to be a tendency to relegate it to other departments of municipal affairs than that of the department of health. It is rather interesting to note that the plumbers are not in sympathy with this movement and that there seems to be a tendency to request the health bodies to again take over supervision of this matter.

A Few Out of Town Enquiries

"One was from a city, which I think is amending its plumbing by-law. They wanted to know why it was necessary to ventilate W. C. bends under floors when we know it is not possible to syphon some of our later-made water closets.

"They were informed that the reason for venting these connections in Toronto are as follows:

"To equalize the atmospheric pressure throughout the whole system of waste pipes, so that no dead ends may be allowed through the system, where the non-action of pure oxygen would allow the pipes to deteriorate, and the wiped joint on bend in particular to corrode and eventually cause a leak. You will readily see that with fresh air inlet on your drain, and fresh passage through the soil and waste lines of the outside air will prevent deterioration in metals contained in same.

"Another one from out of town was in reference to local Board of Health. Was it legal for aldermen to sit on the Board?

"In taking the above up with the law clerk in charge of the Municipal Act, and his opinion is that the amendment to the Act, 1919, Chapter 46, Section 2, when read in with the amendment of the year previous, makes it very clear that as the act stands now a member of the council may sit on the local Board of Health.

"This amendment was put through the house, which I think is all wrong, for my own view is similar to my friends. The local Board of Health is composed of the Mayor, Medical Health Officer, and three ratepayers, is directly responsible to the Provincial Board of Health and was so designed that it may not be dominated or controlled by the city council, its factions, politics and other evils, but shall remain free to do its work wholly for the public health, apparently the appointment of aldermen or others holding similar positions, defeats the very object and intent of placing it under the Provincial Board.

Flat Plumbing Rate on Apartments

"Had a call from a large real estate company in connection with co-operation with other real estate companys in reference to creating a plumbing service for repairs of so much per week in connection with some of their large apartment houses. The above I strongly would discourage, as I can see the thin edge of the wedge in view in allowing the handy man in these buildings to work in conjunction in creating a deception under the above conditions which we have done so much to stop.

Licensing and Regulating of Steam Fitters

"As regards steam boilers and their installation: They, it is true, properly come under regulations as to construction and inspection by the Hon. Minister of Public Works, but, if it is the heating of buildings which is under discussion—which comes under 'Public Health Generally'—it should be taken care of by the Department of Public Health, who should take advice from the Provincial Board of Health—according to the Public Health Act, Section 6 (b)—and under a by-law similar to that on Plumbing and Drainage, (as the Heating is done by a Master Plumber in the majority of cases outside of Hot Air Furnaces) and if a simple and practical Regulation were drafted, as above indicated, so as to thereby make our dwellings fool-proof against accidents (from which Toronto has already suffered), I feel quite certain the public would be satisfied, for the City could issue separate licenses, if thought desirable, for the same.

London Plumbing By-Law

"In reference to London and their new Plumbing By-law which was passed in open Council the 24th day of November, 1919. We are surprised that on March 29th, 1920, that the City Council suspended for two weeks the recently enacted Plumbing By-Law and appointed a special committee to revise the same measures without delay. On the 30th of March, notwithstanding the fact the Council the night before suspended the new Plumbing By-Law until it had been revised and drastically modified, Chairman J. R. Saunders, of the local Board of Health, instructed Plumbing Inspector Young to continue his duties. The Inspector is temporarily without authority to take any action, but he will keep in touch with progressing work and will attempt to use pressure later.

"Now, in my opinion, I do not think the council had the power to do what they did, because previous to the old plumbing by-law of London they were working under Schedule B of the Public Health Act of Ontario, therefore, when they created a local plumbing by-law they were making an amendment to Schedule B, but under the sanction of the Provincial Board of Health, which

you will find under a statutory by-law, page 46, Section 115, and, in my opinion, there are but two things to it that if they had a legal plumbing by-law the Provincial Board of Health was a party to same, and before they can suspend or revise, it should legally be done before the Provincial Board of Health, on which, I think, their city solicitor could have enlightened them, for, in the Public Health Act of Ontario, Chapter 218, R.S.O., page 46, Section 115, you will find under clauses 1, 2, 3, the following:

Statutory By-Law

"115.—(1). The by-law set out in Schedule B, hereafter called the statutory by-law, and every amendment thereof, shall be in force in every municipality as if enacted by the council thereof, and the council of every municipality shall have authority to pass by-laws with the approval of the Provincial Board for making additional requirements in respect to any of the matters dealt with by the statutory by-law.

"(2). The board may permit the council of any municipality to amend the statutory by-law so as to conform to the requirements of the municipality or to meet such special circumstances as in the opinion of the Board may warrant such amendment.

2 Geo. V. C. 58, s. 114.

"(3). The by-law set out in Schedule B, and any amendment thereof approved by the Provincial Board shall have the same force and authority as a regulation made under this act by the Provincial Board.

Plumbing Conditions Far From Ideal

"While people to-day know that disease may be prevented and death averted, yet most of us at heart firmly believe that we are in the hands of a merciful Providence, who over-rules all for our good. We lose sight of the fact that the same wise Providence has laid down laws for our guidance—you will find the books of the Old Testament teeming with 'helps to health.' True, they were written for the Jew many thousand years ago, but no sanitary code was ever compiled. The result is quite evident from history, the world being devastated with plagues and pestilences and I believe this would have been prevented had the hygienic laws of the Old Testament been preached and practised by the Church. It is, therefore, through the saving power of hygiene and the plumbing regulations in which we hope for improvement, in the present generation, by bettering our inherited endowments—the existing conditions are far from ideal and they might be easily and speedily righted if we worked along proper lines; even so far as the present generation is concerned, the saving power of hygiene is possible of great achievements.

National Government's Part in Campaign

"In respect to the part to be played by the National Government in this campaign, there may be legal limitations within which the federal authorities can work, and these will have to be respected, but there can be no doubt that health is a question of national moment, and any legislation which prevents or hinders the National Government from exercising its due prerogative in the matter is faulty and should be amended. If, however, the field is limited, then the responsibilities for engagement in good active work are the greater. In this country the effect of a well-organized and equipped federal department of health would do much to strengthen the hands of the various provincial health authorities, and would firmly establish public health with all that it means of blessings to the people of every class, there would be such a marked advance all over Canada as would surprise us all.

"The many problems of federal, provincial and municipal sanitation are all so intimately associated and interwoven that to begin the enumeration of the functions of any one of them is to at once get in touch with the other two. There are, however, some duties and powers which are more peculiarly suited to each, and yet for their efficient performance require that authority should be centralized, and when it is remembered that unless health measures are efficiently performed they are worthless, for they do not secure the desired end. Hence, we are more and more realizing in this country that health is of national importance, and the Federal Government should devote more attention to all matters having for their object the betterment of the health of the people than it has during the past forty-five years.

"The ideal conditions for health comprise a pure atmosphere in which to live and work, pure food, pure water, protection from infection and accident, and a proper adjustment of work, rest and amusement—together with the all-important one of proper housing.

"The methods of securing improvement in health may be considered for all practical purposes under three groups:

"(a) Government hygiene.

"(b) Social hygiene.

"(c) Personal hygiene.

"The first group refers to the health activities of governments whether federal, or provincial, or municipal.

"The second includes all the work that may be carried on by domestic sanitary and heating engineers, medical men, by social workers and semi-public bodies. The third deals with the life of the family and the individual.

"It is the duty of every domestic sanitary and heating engineer, so far as it relates to this question of health, to study, investigate and recommend to the Governments of Canada how this can be best accomplished, especially since it concerns the health of each member of a household.

"In the past the Governments have been as extravagant and unsaving of human life as they have been in wasting the resources of the country.

"We leave too much to Providence and forget that God helps those who help themselves, and we have yet to realize as domestic sanitary and heating engineers that we must individually know more and practise more of public health principles."

MISDEEDS BUILT COMPETITION

Continued from page 26

More Service Should be Sold Not Given Away.

Service:—"More service should be sold to the public, not given to them. The public should know that labor is a service for which they must pay. Do not blame anything and everything for the price of labor, but have a good plausible reason. The way to arrive at this is to share your business.

Price:—"This is the most prominent of all considerations and the one thing that should be withheld in selling as long as possible. Factors entering into price are merchandise labor, overhead and profit.

Reputation:—"Every man has a reputation he values, but he is inclined to put too much odds on this. He thinks the public know as much about him as he knows himself.

Personality:—"Sell personality but do not allow your business to depend on personality alone because when you pass away there will be nothing left if you do."

Speaking of plumbing and heating in estimating, Mr. Woolley pointed out that in his own business no one estimator handles all phases of estimating so that no one of them knows what the total estimate will be. For that reason the business is not a one man proposition. "If you don't follow this plan and delegate some of the work you will be at it all your life," said Mr. Woolley.

Scaring the Public no Longer Effective.

Labor:—"This is a thing we must consider more than in the past. The trouble with this business is that there are too many secrets that are not secrets. No one ever attended the funeral of a man who died from sewer gas. This thing of trying to scare the people was practised back in the dark ages but to-day you have to talk to them along constructive lines."

Stenographer as Sales Girl.

Mr. Woolley outlined a plan for building up a non-competitive business and added to the former outline a suggestion to put in a stenographer, with the idea of her developing into a sales girl. "Have her produce a certain amount of business to justify her salary," said Mr. Woolley, "and increase her salary as sales increase. It gives an incentive to work. One of the best sales plans we ever had was that whenever we installed a job we found out the names of ladies attending the same clubs as the lady of the house in which the job was done. To these we sent a letter telling them about the fittings installed in the first home.

Continued on page 32

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

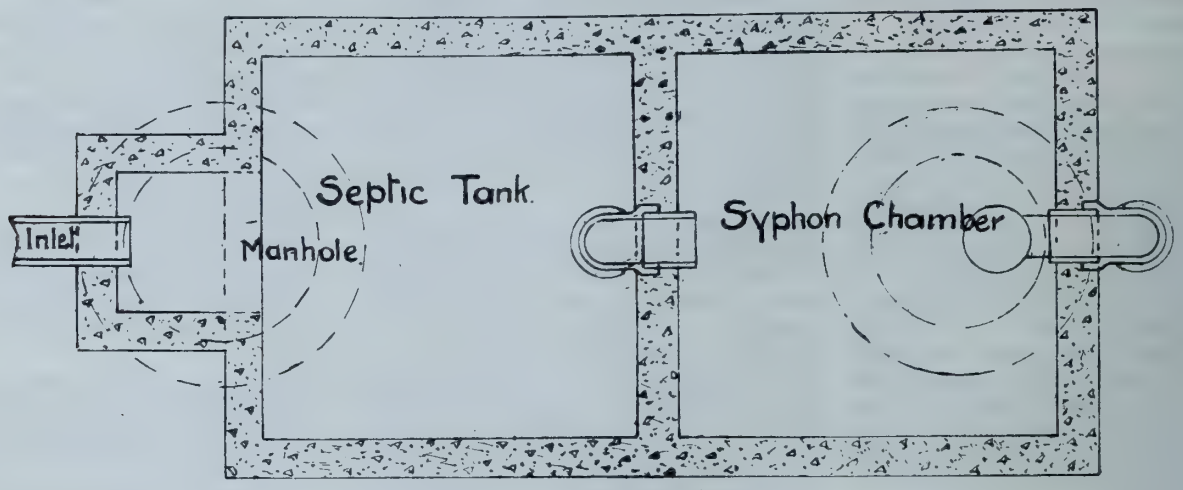

FIG. 10

Article No. 6 of the Series

ANOTHER well-designed form of septic tank suitable for constructing in high ground is shown in Figs. 10 and 11 and is constructed on different lines to the usual type of double chamber septic tank, as in this case there is practically two large, and one small compartment. The sewage enters the tank well above the water line and discharges into the small comliquefying chamber where the sludge is deposited; the sewage passes over the weir into the liquifying chamber where the sludge is deposited and the liquid run off by the sealed central pipe connection into the automatic syphon chamber, where it is discharged periodically into the filtration area for secondary purification.

Overflows and inspection manholes should be constructed as shown in sketch.

This type of tank is designed for solid ground as the outlet pipe from the ping is at such a low elevation that the tanks for filtration area would be far too low for pipes on level ground construction.

In designing septic tanks in level ground, the second chamber should be designed of shallower depth than the first compartment, and the length should always be extended until the required capacity of approximately 12 hours' supply is always retained before the automatic discharge of the syphon. The depth in such cases should never be greater than that required for the efficient working of the syphon.

R.M.A. OPPOSES EIGHT HOUR DAY

In view of the fact that the eight-hour business day question is now receiving much public attention, the action taken by the Dominion Board of the Retail Merchants' Association of Canada at the last meeting regarding this matter is of interest.

The stand taken by the Association was that experience with the present system has proved that it is a perfectly fair and sound one and quite in keeping with good democratic government. The Association therefore went on record as being satisfied with the present system of determining the hours of labor as far as the retail merchants were concerned, and asked that in any legislation being planned the merchants be exempted so as to allow them to continue as at present under provincial legislation.

GRAVITY FILTRATION PLANT FOR CHATHAM

Chatham, Ont.—The Chatham Waterworks Commission has adopted report of the city engineer in which he recommends a new rapid sand gravity filtration system as the solution of the local water problem.

The proposed system will necessitate the scrapping of the old plant and building an entirely new system, with the intake pipe located several miles up stream at an estimated cost of $371,000.

The city engineer was instructed to prepare plans and specifications, to be approved by expert waterworks engineers. He estimates that construction can be commenced in three months' time. The usual money by-law will be submitted to the ratepayers at a convenient date.

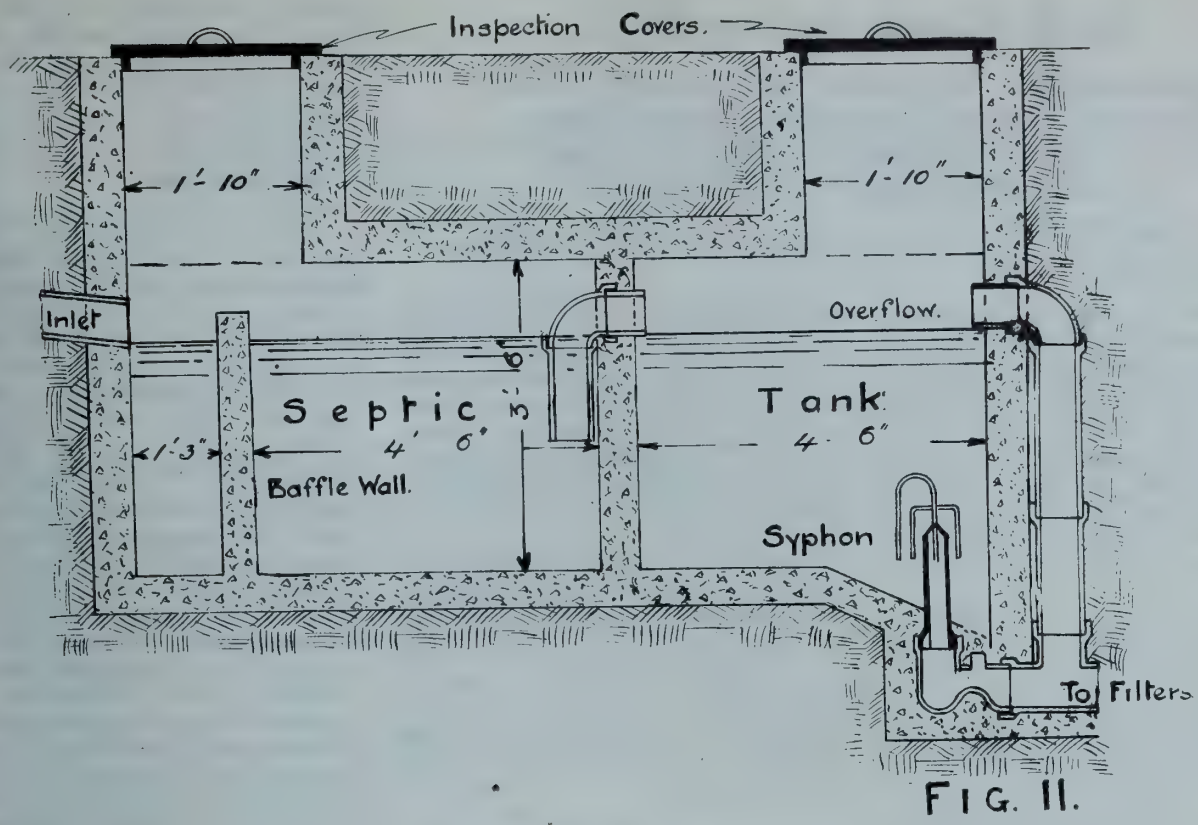

FIG. 11.

Legislation Affecting Manitoba Merchants

Amendments to the Shops Act and the Transient Traders' Act—Proposals re Extracts and Essences

The Shops Act in the Province of Manitoba has been amended to permit rural municipalities, villages, and towns to pass by-laws making Thursday afternoon from 12 o'clock noon a half holiday for the whole or any part of the year. Cities may pass by-laws making such day or days half holidays during the whole or any part of the year as are determined by the class or classes of trade desiring the same.

The Retail Merchants' Association opposed the registration of the assignment of book debts which called for the registration in the office of County Clerks of every assignment of book debts by every retail trader within thirty days from the date such assignment was made. Under this Bill, retail merchants were to be subjected to special treatment. In other words, it was class legislation. Mr. Edwin Loftus, K.C., and Mr. Horace Chevrier represented our Association. The Bill was killed when it reached the Law Amendments Committee.

During the present session of the Manitoba Legislature an amendment to the Transient Traders' Act was passed. Now all distributors who are peddlers or transient traders will first have to obtain a provincial license, then a municipal license before trading in any locality. The peddler or agent must wear a badge. Penalties are fixed for those who do not comply with the law and report to the proper local officers before soliciting business.

In the proposed amendments to the Temperance Act, reference is made to the handling of extracts and essences. Every dealer is required to keep a record of every sale of every 2½ ounce bottle of flavoring extract or essence. Strong opposition was registered against such a proposal by the Retail Merchants' Association, and the following provision was agreed: Great care should be exercised in selling extracts or essences, as many cases have been reported indicating that these extracts or essences have been used for improper purposes.

PROVINCE BUYS SEWER PIPE

At a recent sitting of the Ontario Legislature Mr. Gray enquired as to whether the Department of Highways had purchased any vitrified or glazed sewer pipe since Nov. 13th, 1919; for what purpose it was to be used; what quantity of each size was purchased and at what price; and as to what was the quality of the pipe.

Reply was made by the Minister of Public Works to the effect that such pipe had been purchased since the date mentioned, and it was to be used on side roads and entrances. Quantities and prices of pipe purchased were as follows:—8 inch tile, 800 feet at 18 cents per foot; 12 inch tile, 2,286 feet at 36 cents per foot; 15 inch tile, 2,848 feet at 51 cents per foot; 18 inch tile 1,016 feet at 75 cents per foot; 24 inch tile, 20 feet at $1.29 per foot; 30 inch tile, 30 feet at $3.24 per foot. The first five sizes mentioned were of No. 2 quality; the last one mentioned being No. 1 quality.

RE-ARGUMENT GRANTED IN BOARD OF COMMERCE CASE

Ottawa, April 6.—A re-argument has been granted by the Supreme Court of the application to test the jurisdiction of the Board of Commerce and the constitutionality of Section 17 of the Combines and Fair Prices Act, under which the Board of Commerce is given powers as a price-fixing tribunal. A rehearing will take place in the Supreme Court on May 4 next.

The application was brought on March 15 by counsel for the Retail Merchants' Association, the Canadian Manufacturers' Association, the Attorney-General of Alberta, and others, to question the intro vires of the act in forbidding hoarding of commodities, in appointing the Board of Commerce to impose penalties for offences against the act and require Provincial courts to enforce them, in giving the Board power to decide unfair profits in purely provincial transactions, and in prohibiting export of commodities from Canada.

When the Supreme Court sat to-day to read judgments at the end of the term, no judgment was handed down in this particular case, and it is understood that no judgment will be given until after the rehearing of the case.

Much Unrest Among Boys

Apprenticeship Committee Recommends Good Wages be Paid to Attract Best Type of Boys—Night Classes Organized—Plumbers Should Give More Attention to Apprentices

Report of G. CLAPPERTON, Chairman of Apprenticeship Committee, before Ninth Convention Ontario Society Domestic Sanitary and Heating Engineers

"IN presenting to you our Apprenticeship Report for 1919 we have much pleasure in stating that considerable improvement has developed during the past year, though the problem is far from being the condition to be desired. There is a great deal of unrest among the boys between the ages of fourteen to seventeen and it seems almost impossible to get boys of the proper calibre for learning the trade at the present time.

"We, in Toronto, have been working on this problem more or less all year and have been fortunate in having a class formed at the Technical School where we have about seventy boys taking Mechanical Drawing, Mathematics and Physics, and we believe we have started in the right direction to improve our trade as a whole. Three of the larger operators in our city subscribed sufficient money to form an Endowment Fund whereby the interest could be taken for scholarships. It is our purpose to give four Scholarships each year. We felt we had to do this as an inducement for the boys to persevere and take the proper interest in this course of education. We would strongly advise the members of our trade throughout Ontario to arrange in some way to give the boys this Technical Education, as we think it is a step in the right direction.

"We had a talk with Dr. Mercer, Government Inspector for Technical Education. He told us how ready the Government would be to help along Technical Education in any part of Ontario, but believed that night classes should be arranged in all cities of Ontario and also the larger towns, and classes especially conducted for boys actually engaged in the business. Their masters could give them practical knowledge and it was thought that possibly some of the High School teachers could be induced to give the boys Mechanical Drawing, Mathematics and Physics. Our boys in Toronto attend these classes two nights each week and we intend to make the rule that if a boy will not attend the classes we consider him not interested enough in the business to remain at same, but as we have explained it is very difficult at the present time to make hard and fast rules for the boys as we find we cannot supply the demand. Your committee feels that good wages will have to be offered these boys and that we should if possible take on no boys who have not had a common school education and of good moral character. We believe these boys could be got if proper inducements were offered. The parents of all boys should be communicated with and asked to co-operate with the masters and encourage their boys to attend these night classes when formed so that the coming generation of Sanitary and Heating Engineers will not only be good mechanics and good business men, but will be citizens interested in the city's welfare.

"We would strongly recommend that all Sanitary and Heating Engineers in the Province of Ontario give more time and attention to the boys whom they take on to learn the trade, give them a chance to get Technical Education. If this is done we feel sure the problem we face to-day will be greatly improved in the coming year, in regard to our apprentices."

MISDEEDS BUILT COMPETITION

Continued from page 29

We generally found that some of them would want even something better.

"A bookkeeper on the same plan can sell a lot of goods. A salesman or two can be added later and a foreman could be employed but not until three-quarters of his time is productive. If more than that amount had to be included in overhead I would discharge him. A stockman cannot usually be used to advantage in shops doing less than $100,000 of business per year.

Applying Charting System

"A chart should be made of what each employee is to do. The possibilities should be also figured. The men in this business are a good bunch of fellows but they try to be a jack of all trades. If other businesses did this there would be a great many more failures. The only reason the trade is where it is to-day is because of its lack of organization. When you get organization others see there is something required to go into it and undesirable and unlikely persons are kept out. In our town there has only been one new competitor commence business in eleven years because we have built up our organization. None of the business houses in the town have less than five people in the office and they have an established reputation. We do not pay any attention to architect's specifications, the customer comes to our store to buy their installations."

Bookkeeping System

Mr. Woolley went into details concerning the bookkeeping system adopted by the Bureau for use by plumbers. "The object of the system is to show what you are really doing," said Mr. Woolley. "It is free from red tape. We figure costs before the bill is sent out. You cannot make out your bill till you do know your costs. Even if an extra employee is required to figure costs it is well worth while.

"In the United States the original entry must be in bound form. This is posted to the Sales Journal subdividing the work under Plumbing, Heating, Contracting, etc. This is the key of the whole system, and it cannot be tampered with because by adding each column diagonally the same total is obtained and each column would have to be changed to make any total difference. The Purchasing Journal enumerates overhead costs. To take care of cash there is the Cash Book, petty cash account and monthly summary. The Ledger is divided into Customers' Ledger Accounts Payable and General Ledger.

"When this system has been applied to the business of small and large plumbing shops the results have been surprising," added Mr. Woolley.

Other forms printed and supplied by the Bureau included Workmen's Reports, Records Sheets for plumbing and heating, Request for Quotations to Jobbers; Estimate Sheets; Heating Chart, this being a quick method of finding steam radiation required to heat a building; Estimate blanks; Service bulletin containing outlines of showrooms, advertising copy, bonus plans, etc.

Mr. Woolley pointed out that the United States Bureau was taking steps to standardize brass goods, soil pipe, etc, in order to bring about a quicker turnover.

"Our manufacturers and jobbers appreciate that unless there is co-operation we are not going to get very far and that is the big thing in trade extension to-day. Our manufacturers will put up $100,000 this year. This will assist in developing sales. From the standpoint of credit assistance will be rendered to the manufacturers because if we can show the plumber how to be financially successful the manufacturer too will be successful. Within the next eight or ten years the plumbing industry will have a different viewpoint entirely."

Following this address questions were asked by President Minnes and F. R. Maxwell, as to the possibility of securing the set of books and other literature for the trade in Canada. Mr. Woolley throught there would be no difficulty in this matter and promised to take it up with the directors of the Bureau.

Mathewson Hardware Ltd., has been incorporated with head office in Toronto to deal in general hardware and furnaces and to manufacture galvanized ironware.

Youngblood Electric Heater Co. has been incorporated with head office in Toronto to make and deal in electrical goods and appliances.

Shall We Divide Canada

IN 1867 our fathers consummated at great price a union of all the provinces and interest of Canada. For over half a century the provinces of Canada have developed together, each the complement of the other.

Canada must be bound together as it is to-day, not so much by the machinery of government as by ideas held in common by all and freely exchanged, so that all sections sympathize with each other. This result has been accomplished primarily by the press, particularly the weekly and monthly periodicals and business papers.

They have no local or sectional bias. They go to all parts of the Dominion. They serve all parts alike. Their service is in bringing all provinces close together into one great nation through one common understanding.

Canada must not be split into a half-dozen sections—weak with the evils of sectionalism, disastrous in the extreme—overflowing with narrow provincialism.

Emanating from we know not whither, comes an idea that will rip asunder all the good done in over half a century of patient building.

It is proposed to tax the very thing that has bound Canada into one—to place on the nation-binding press a zone postal tax which would increase the postal charge upon national periodicals as high as 800 per cent. It means loss to you personally and a loss to your country. It will weaken, cripple and in some cases destroy Canadian national periodicals. You will be deprived of papers that have kept you informed on yoru country's problems, your business problems, that have helped you in your work, and such magazines as do survive will cost you much more.

The publishers are not trying to evade fair taxation. They will gladly accept any fair tax upon their profits.

But is it fair that you should be taxed out of getting journals, papers and magazines that have helped you build your business and in turn built the business of the country?

If you believe in national ideals and national periodicals, sign attached form.

Tear off and mail to-day

SANITARY ENGINEER,
153 University Ave., Toronto, Canada.

I am opposed to any zone postal law which would mean charging higher subscription rates to subscribers, according to distance from office of publication.

Name .....

Address .....

EDITORIAL COMMENT

SUCCESSFUL CONVENTION OF SANITARY ENGINEERS

WHAT is perhaps one of the most outstanding achievements in connection with the work of the Ontario Society Domestic Sanitary and Heating Engineers, which has just completed its ninth annual convention, is the step taken to bring about a better understanding of conditions existing between the manufacturers and supply houses on the one hand and the craft on the other. The activity of the officers of the society in bringing about an opportunity for a full discussion of the matter on the floor of the convention, with representative manufacturers in attendance, is to be commended.

As result of the deliberations on the subject at the convention, it is to-day the general feeling among those who were present that a new era is dawning for the plumbing trade in Ontario. The great possibilities for trade were outlined and the most effective manner in which the plumber can take advantage of these possibilities received much attention, with expert advice being offered by Wm. J. Woolley, of the United States Trade Extension Bureau. In view of the lack of new building, emphasis was laid on the necessity of developing bigger business from existing buildings. Educational work to indicate the advantages of installing new equipment instead of constantly repairing was felt to be very necessary, particularly insofar as alleviating the present shortage of help is concerned.

A distinct feeling of kinship has taken root between the manufacturers and the trade, and as the former have some definite plans on which to work, the viewpoint of the trade should be considerably elevated within the next few years.

SWITCHMEN'S STRIKE WORSE THAN STEEL AND COAL STRIKES

NEARLY half the steel industry is at a standstill because of the railroad strike, according to the "Iron Age," and if the tie-up lasts for any length of time the shutdown of steel works and rolling mills will be nearly complete. This difficulty comes just at the time when car and fuel difficulties were being overcome and production was getting into a new record stride.

"Demoralized to a degree far beyond that brought about during either the steel and coal strikes of last fall, iron and steel operations virtually have been paralyzed by the first few days of the nation-wide strike of railroad switchmen," says the "Iron Trade Review." "No such threat of complete stagnation has been faced by the manufacturers in many years, if ever. Coming as a climax to the prolonged period of car and fuel shortages, the strike has caught the industry in a highly vulnerable position with raw material stocks at a low point and plant yards congested with unshipped product. Scarcely a ton of freight now is moving in and out of works yards, many mills and furnaces have been forced to suspend and others will follow quickly as supplies on hand are worked up or the limited storage space remaining is filled with finished tonnage. The loss of production promises to be large. Practically all producers have withdrawn as sellers and for the moment it may be said no iron and steel market exists."

THE ONTARIO BUDGET

THE Ontario Provincial Budget presented by the new Provincial Treasurer indicates that the Drury Government does not plan to stint expenditure on the main objects of sound public policy. For the past fiscal year expenditures amounted to $21,464,574, including war tax receipts of $1,491,722. For this year the expenditure is estimated at $17,932,830. This figure is considerably less than the outlay for the past year, but it is significant that the estimated outlay for this year on education, agriculture, colonization and immigration and good roads is to be increased. Total receipts last year were $19,904,772, including revenue raised from war taxes of $2,085,497. This is revenue which is no longer available.

The estimated receipts for this year are $20,211,378. This includes nearly $600,000 more from the Hydro-Electric Commission than was received last year. Larger returns from other principal sources of revenue are also expected. These sources comprise lands, forests and mines, corporation tax, succession duties, etc. It is

also noted that tax on racing is expected to yield $750,000. Other new sources of revenue foreshadowed in the budget are additional taxes on banks and insurance companies. A new policy is to be followed in dealing with timber licenses.

In summing up, the Treasurer pointed out that there had been a deficit of $1,564,000 last year and that this year he estimated receipts at $20,211,000 and expenditures at $17,932,000, which, if estimated approximately correct, will leave a favorable balance.

STERLING EXCHANGE GETTING BACK TO NORMAL

THE return of the English pound sterling to the four-dollar mark has caused rejoicing in business and financial circles in England and in Canada. The rapid scaling of the 90 cent stretch since sterling reached the low level of $3.13 in United States currency is an indication of the financial stability of the British Empire.

While recent shipments of gold to the United States from Great Britain have undoubtedly influenced the situation to some extent, there have been other more important influences at work. The British spirit has triumphed in its dogged determination to bring back the leadership of the financial world to its former seat. British exports to the United States are relatively small, but exports to foreign markets have been growing in volume, and throughout the whole process this has tended to strengthen British trade in the markets of the world. It is significant that at no time did the high exchange on sterling in the United States cause much apprehension among British manufacturers, but undoubtedly a return to more normal conditions of exchange will be a big help to trading conditions between America and Europe.

The United States price on Canadian money is increasing, and this has, no doubt, been assisted by the adjustment of sterling exchange. The recent movement into Western Canada of settlers from across the border has resulted in transferring much wealth and credit from the American to the Canadian side of the line. Then, too, there has been response in Canada to the appeal for rigid economy and the cutting down of trade in luxury lines. The condition tends to give confidence in regard to the outlook for business tax."

CAUSES OF INFLATION

FOLLOWING Frank A. Vanderlip's address before the Canadian Club in Toronto a short time ago, there were many who expressed the opinion that he was altogether too pessimistic. However it is noteworthy that several of the predictions which he made at that time have since been fulfilled. In a more recent address, Mr. Vanderlip, who was formerly president of the National City Bank, New York, stated that in his opinion the inflation of United States currency and of bank credit has, more than anything else, been responsible for the per cent. rise in prices in the last six years.

"There are three things upon which real prosperity must be based," he said. "These are ample capital, efficient labor and an application of sound economic principles. We are prosperous to-day in face of all three fundamentals, and our prosperity is false as well as dangerous.

"Incomes to-day are larger than ever before. The chief reason for this is the Government taxes.

"But even were taxes reduced the situation would not be sound. The contention is that labor is only 60 per cent. efficient. There is no non-employment to-day. And yet, despite the fact, our productivity is lower than it has ever been."

Canadians are awaiting the Budget speech of the Finance Minister, at Ottawa, as a great deal of interest has been aroused as a result of rumors that changes will be made in taxation methods. Regarding the inefficiency of labor, Canadian manufacturers have also experienced lower productivity, despite constantly advancing wages.

SERVICE THAT COUNTS

THE March 15th issue of SANITARY ENGINEER gave the result of the election of officers at the Saskatchewan Convention held in Saskatoon. The April 1st issue of SANITARY ENGINEER gave the convention report in detail. We have heard many favorable comments on this service, due particularly to the fact that we have published this information far in advance of any other papers. This is in line with the regular policy of SANITARY ENGINEER to give the best possible service and to give news when it is news. We are giving in this issue a report of the Ontario Convention which has just closed in Toronto and we feel sure that the promptness with which this report is presented to our readers will further emphasize the fact that SANITARY ENGINEER is a paper that is right on the job when it comes to giving news to its readers.

THE ENTRY lists for the Canadian Industries Exhibition, to be held in London, England, in June, will remain open but a few weeks longer. A large number of Canadian manufacturers have availed themselves of the privilege of displaying their products to British buyers for the purpose of developing overseas trade. Exhibitors who have secured space are already getting their shipments ready, preparatory to sending them to London.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Uxbridge, Ont.—Slatter Bros. have purchased the tin stock and shop of the Uxbridge Hardware Co., and will commence the installation of plumbing, etc.

Fergus, Ont.—Messrs. Brooks & Graham, plumbers and tinsmiths, have purchased from the Michie Estate the store on St. Andrew street, occupied lately by Mr. C. O. Simmons.

Woodstock, Ont.—Two well known Woodstock young men, Tom Harvey and Art. Wilson have formed a partnership and are now in business, as electricians and plumbers, under the firm name of Harvey & Wilson.

OBITUARY

Moose Jaw, Sask.—John Hawke, founder of the Moose Jaw Heating and Plumbing Company, died recently at the age of 70 years. His surviving son, W. B. Hawke, will have charge of the business.

PERSONAL

Vancouver, B.C.—A. McCulloch, having received the largest number of marks on a written examination on practical points in the trade, has been appointed assistant plumbing inspector.

INCORPORATIONS

V. O. Phillips & Sons, Ltd., has been incorporated to manufacture and deal in boiler compounds, steam packings, etc.

GRIMSBY BRICK AND TILE WORKS SOLD

Messrs. Phin Brothers, of London, Ont., have purchased the Grimsby Brick and Tile Works from the former owners, Reeve C. T. Farrell and R. S. Crain. The new owners have had former experience in the manufacture of brick and tile.

NEW WATER SCHEME FOR ETOBICOKE, ONT.

Long Branch, Ont.—At a recent meeting of the Etobicoke Council, a by-law making provision for a waterworks area between New Toronto and the Etobicoke River was given its first reading. This is a similar scheme to the Islington area and will be carried out under the provisions of the bill secured by Etobicoke in 1917. This will make it possible for all the properties in Etobicoke south of the G. T. R. tracks to receive water.

WILL SELL LOTS FOR BUILDING ONLY—NO SPECULATION

Kitchener, Ont.—The Kitchener Construction Company has appointed committees to deal with the construction of eleven houses to be erected immediately. The company plans to offer thirty-three lots to purchasers who intend building houses this year. No lots will be sold for speculation in order to encourage building.

ACTIVE BUILDING FORECAST

Regina, Sask.—Building permits issued during the month of March amounted to the sum of $260,550, which brings the total for the first three months of the year to more than half a million dollars. Twenty-five new dwelling houses were included in the March figures.

PLUMBERS MUST HAVE LICENSES

Montreal.—The power given the city at the last session of the Legislature to protect citizens against uncertificated plumbers by forbidding master plumbers from employing journeymen plumbers who have not obtained a license and a certificate of competency, has been incorporated in a by-law providing that every master plumber must furnish the city without delay the name and address of each journeyman plumber in his employ on demand of an official of the health or license department.

REVAMPING LONDON BY-LAWS

London, Ont.—A joint committee composed of a number of members of the City Council, contractors, plumbers and others interested, have commenced the task of revamping the city plumbing by-law, which was summarily suspended by the City Council a week ago upon presentation of evidence that it is unreasonable and a contributor to extortionate charges.

The committee will probably have a modified by-law ready for next session of the council, and if its provisions aim purely to insure sanitary installations it will not be objected to.

RECOMMEND SANITARY INSPECTOR FOR HAMILTON

Hamilton, Ont.—F. Thornley, an ex-citizen of Winnipeg, will be asked to state the salary he will require to become chief sanitary inspector and smoke inspector. The Board of Health has recommended his appointment. There was some discussion as to whether the plumbing inspector should be under the jurisdiction of the Board of Health. It was decided that the Board of Health should have the jurisdiction.

MAY ESTABLISH CENTRAL HEATING PLANT

Moose Jaw, Sask.—The Light and Power Committee is considering a proposal to install a central heating system in this city. Economy and the elimination of the smoke nuisance are claimed among the principal benefits of the central heating system. Brandon, Man., is the only city in Western Canada at the present time with such a system.

ELECTRICITY TO PUMP WATER IN BRANDON

Brandon, Man., March 19.—Another recommendation has been made to the city council suggesting electrical power to run the pumping of the city water. G. L. Guy, one of the consulting engineers with the public utilities commission, in a letter addressed to the City Council, stated that the Canada Gas and Electric Company are willing to supply the power to the city at the rate of 2.8 cents per kilowatt hour. Mr. Guy said that the installation of electric power in the pumping of water would save the city $12,000 per year.

NIEDECKEN MIXING VALVE TO BE MANUFACTURED IN CANADA

Arrangements have been concluded by the patentee of the Niedecken Mixing Valve for the exclusive rights to manufacture the valve in Canada. These valves are to a large extent specified by architects in Canada for installation in public buildings, hotels and private homes. The line will be handled by H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

MEAFORD CONSIDERS ARTESIAN WELL SCHEME

Meaford, Ont.—The question of increasing the town's water supply has been discussed by the Town Council. Herbert Johnston, C.E., of Kitchener, who made a survey of the water system of the town, reported to the council that he felt confident a good supply of water could be secured from artesian wells, which he had reason to believe can be located by boring near the present water basin. The cost of sinking the wells will not, it is thought, exceed the sum of five hundred dollars, which would be much cheaper than running an intake pipe out into the lake. The matter was referred to the Waterworks Committee to report at the next meeting.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

HIGHER prices have again been made on important lines which will affect nearly all in the trade. Wrought iron and steel pipe has been marked up and prices on range boilers and soil pipe have been withdrawn. Wrought washers, wall and floor thimbles, screw plates, brass valves, closet seats, high-up tanks, closet combinations, VitrO closet tanks, as well as sheets and plates, all have new prices.

Trade in nearly all lines is very brisk. Spring commodities are being demanded and all in the trade are preparing to handle the season's business. Prices are very firm and the scarcity of supplies is becoming a great inconvenience to all.

The proposed strike in the metal trades is causing considerable comment and some uncertainty. The new proposed freight rates may be a factor for higher prices if effective. Collections are fair, although some are temporarily held up owing to the situation the financial concerns have created, by cutting down the amount of loan on property. This, however, is believed to be a very wise procedure, as this will have a tendency to keep speculative building, etc., in check, it is stated.

TORONTO, April 13.—Important changes in prices have been made on numerous sanitary and plumbing supplies, wrought pipe being one of the features. Prices on soil pipe, also range boilers, have been withdrawn. Galvanized and black sheets are much higher in price and are still very scarce. Wrought washers, O. K. wall and floor thimbles, Reece's screw plates, brass valves, closet seats, high-up tanks, closet combination and Vitro closet tanks, all have new prices. Many are wondering what will be the outcome of the proposed strike of the metal trades workers. The situation which is developing on the railroads is also causing considerable comment. Higher freight rates or a tie-up of the railroads would undoubtedly be the cause for higher prices, it is stated.

Collections are fair. Nearly all in the trade are enjoying a very busy period, which compares very favorably with some of the best years recorded. The prices on nearly all commodities are holding very firm, and the tendencies in nearly all cases are upward. Scarcity of raw material is also causing some inconvenience.

10% Lower Discount Advances Washers

WROUGHT WASHERS. — New and higher prices have been made on wrought washers. This is said to be due to the situation which has developed in iron and steel. The higher cost of labor is also a factor, it is stated. The new discount is now being quoted at 30 per cent. off the list in place of the former 40 per cent.

O.K. Wall and Floor Thimbles Now Cost More

WALL THIMBLES, O. K. brand, have been marked up to higher prices, the 7 inch now being quoted at $7.20 per dozen. The O. K. floor thimble is now quoted at $8.10 per dozen for 7 inch.

Reece's Screw Plates Have Been Advanced

SCREW PLATES. — Reece's screw plates have been marked up and are now quoted at: No. C or CC, $24.10 per set, while the No. EE is quoted at $36.25 per set.

Brass Valve Prices Marked Up; Some Lower

BRASS VALVES.—Prices have again been revised on some lines of brass valves. It is interesting to note that some lines are a trifle lower, while others are a shade higher. Some of the new prices are: Standard Empire, net list; Penberthy, net list; Mueller (A 2990-2), net list; Kerr, 12A, add 5 per cent .to list; J.M.T., type "C," 5 per cent. discount; J.M.T., add 5 per cent. to list; Jenkins, add 3½ per cent. to list; Jenkins, disc Empire, net list; Kerr, gate valve, 5 per cent. discount from list.

Closet Seat Prices Have Been Revised

CLOSET SEATS—A revision of prices have been made. Nearly all lines whose principal material is wood are unsettled and many changes in prices have been made and in some cases others are pending. Some of the new prices are: Golden oak or cherry finish, with cover, $3.25; nickel plated post hinge, plain oak, $4.00; quarter cut oak, $4.25; birch mahogany, $4.25.

High Up Tanks' New Prices Are 10% Higher

HIGH-UP TANKS.—New and higher prices have been made on high up tanks. This, it is stated, is partly due to the situation which has developed in lumber and wood of nearly all kinds. The 8x17x10 oak high-up tank is now being quoted at $10.50; the 9x20x10 is quoted at $12.50; while the 11x22x10 is marked up to $14.50.

Closet Combinations Have Been Marked Up

CLOSET COMBINATIONS.—Higher prices have been made on this commodity, although not of a heavy nature. The oak wood tank, with oak wood strip seat cover, is quoted at $30.00; oak wood tank, with oak post hinge seat and cover, $30.50; Vitreous China tank, with oak or mahogany post hinge, $33.50; enamel iron tank, oak or mahogany, post hinge seat and cover, $32.50.

Vitro Closet Tank Prices Have Again Advanced

VITRO CLOSET TANKS again have new prices. This is said to be more of a revision. Some of the new prices are: Oak Vitro closet tanks, $17.00 each; white Vitro closet tank, $19.25; mahogany, white Vitro tank, $19.50; enamelled iron, $19.25; Vitreous China-English, $2.25; Vitreous China Bellemeade, $20.25; Vitreous China-Canadian, $20.25.

Enamelware Situation Unchanged; Prices Firm

ENAMELLED WARE. — Prices are quoted from a firm basis, and no lower prices are looked for, in fact it is the belief of many that higher prices will be made before the year is over. Jobbers have fairly large stocks this year, it is believed, and manufacturers are working hard to keep up their end, which continues to be the heavy one.

Many are surmising what the future situation will be. Some are concerned over the proposed new freight rates. The impending strike may be a cause for higher prices, if effective.

Bath tubs, roll rim, 4. 4½, 5 feet, 24 to 30 in. wide	$37 05
Bath tubs, 5½ ft.	41 20
Lavatories—	
17x10" Apron F139 or P4.25	11 05
18x24" Apron F154 or P3845 or P3847	17 00
18x21" Apron F169 or P4205	12 70
18x21" Roll rim F197, F199 or P4655-6	11 10
17x19" Roll rim F241 or P4345	9.05
Sinks, roll rim, 18 x 30 in.	16 60

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Sheets and Plates Scarce; Have New Higher Prices

SHEETS AND PLATES.—Although the shortage which has prevailed for some time past continues to be very great, jobbers state that shipments are coming in in much larger quantities and some state that if nothing seriously happens that they will have some considerably larger tonnage than they had expected some few months ago.

It is hard to say just what the situation in regards to this commodity will be in the near future. It may be that the mills will be able to clear up their old orders and take on bookings for the second half of the present year, although it is stated that premium buyers are still in the market. Especially is this true of the automobile manufacturers.

The following quotations are being quoted by some, although they are more or less nominal owing to the great scarcity, and it is believed that very few have complete list of sizes in stock at present:

BLACK SHEETS

14 gauge	8 00
16 gauge	8 10
18-20 gauge	7 95
22-24 gauge	8 00
26 gauge	8 05
28 gauge	8 15
3-16 inch plate	....
¼-inch boiler plate	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$10 00	$11 50	$10 75	$12 00
U.S. 28	10 20	11 70	10 35	11 45
U.S. 26	9 90	11 40	10 05	11 15
22 and 24	9 75	11 25	9 90	11 00
18 and 20	9 60	11 10	9 75	10 85
16	9 45	10 95	9 60	10 70
12 and 14	8 70	10 20	9 45	10 55

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Conductor Pipe and Eavestrough Moving

EAVESTROUGH AND CONDUCTOR PIPE are beginning to show great activity with the warm weather and many are demanding their booked orders, which are going out in good volume. The following prices are current for this commodity:

PIPE (Conductor)

Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10 ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in.	$6 90	15-in.	$12 50
10-in.	7 70	18-in.	16 00
12-in.	9 10		

F.O.B. Toronto, Oshawa, Ottawa.
Add 5% to the above list.

Little Change Shown on Lead and Zinc Products

LEAD AND ZINC PRODUCTS. — Little change is noted in the situation of lead and zinc products this week. The pig metal is holding very firm and steady, which is the situation all throughout the products. Some have it that the situation may improve and that supplies of raw material will be more available, although it is not expected that lower prices will take place at least immediately, in fact present prices are quoted on a very firm basis, and are as follows:

Lead pipe, list, per lb.	0 17½
Lead waste pipe, list, per lb.	0 18½
Do., over 8 inches, list, per lb.	0 19½
Above subject to discount of 10 per cent.	
Lead traps and bends	add 30%
Lead wool, lb.	0 16
Lead sheets, 4 to 6 lbs. sq. ft., in rolls. per lb.	0 14
Cut sheets, ½ to ¾c lb. extra, and cut to size 1c lb. extra.	
Solder, wire, lb.	0 45¾
Solder, strictly, lb.	0 43
Solder, commercial, lb.	0 40
Zinc sheets, per lb.	0 19
Solder, guaranteed, lb.	0 43¾
Solder, wiping, lb.	0 40

Corrugated Sheets Firm; Situation Unchanged

CORRUGATED SHEETS. — The demand for corrugated sheets continues to be heavy, and manufacturers still have difficulty in supplying the demand. This is said to be entirely on account of the existing scarcity of flat sheets, although manufacturers claim that shipments are coming better than they have for some time, although in many cases they are very erratic, the manufacturer receiving one or two cars probably on one day and then not be able to procure any more for some time afterwards.

The following are the present quotations:

CORRUGATED SHEETS—	Per 100 sq. feet Galv'd	Painted
No. 28-gauge	$ 9 25	$ 7 75
No. 26-gauge	10 00	8 75
No. 24-gauge	15 00	11 00
No. 22-gauge	17 50	13 75
No. 20-gauge	21 00	17 50
No. 18-gauge	26 50	21 50

On shipments of 300 lbs. and over, freight is allowed south and east of and including North Bay; also several western counties in Quebec Province. Places north and west of North Bay, the freight is equalized on North Bay. For Quebec and Maritime Provinces, freight is equalized on Montreal.

Ad 5% to above list.

Scarcity of Cast Iron and Stove Plate Still Prevails

OLD MATERIALS.—Stove scrap and cast iron continue to be in great demand and dealers have great difficulty in coping with it. To-day's price on stove scraps is high, mostly being quoted at $32.00 per ton, while cast iron number 1 has reached the high water mark of $38.00 per ton. However, nearly all other commodities on the list remain unchanged and have a tendency to be rather quiet, although it is the belief of many dealers that it is only a matter of a short while before the demand will become very brisk for the other commodities and a good volume will be handled. The following are the present quotations:

DEALERS' BUYING PRICES

Pipe scrap	....	11 00
No. 2 busheling	....	13 00
Stove plate, per ton	....	....
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 08
Scrap zinc	....	0 06½
Heavy copper	....	0 17
No. 1 machinery cast	....	....
Wrought iron, No. 1, per gr. ton	....	15 00
Heavy melting steel	....	15 00
Heavy lead pipe	....	0 06
Old rubbers, boots and shoes	....	0 06
Overshoes. lumbermen's rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 04
Heavy lead pipe	....	0 06

Boiler Tubes Still Scarce; Price Firm

BOILER TUBES.—Many jobbers are still in a quandary as to the future situation of boiler tubes. While some few have stocks, it is stated, the general situation is none too bright. Jobbers state that stocks have often to be picked up at premiums and in many cases it is necessary to have a man right at the mills in order to obtain any satisfactory supplies whatever.

This is said to be directly due to the steel situation and the shortage of skelp. However, one favorable factor is the lowering rate of exchange, and while the mills could advance their prices probably 5 per cent. the drop in exchange would even matters up to some extent. The following are the present quotations:

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	$.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 50	30 00
2 inch	32 00	28 75
2¼ inch	36 00	31 25
2½ inch	45 00	35 75
3½ inch	69 00	48 75
4 inch	96 00	62 50
3 inch	53 00	45 75
3¼ inch	.....	52 50

Prices on Cotton Waste Hold Unchanged; Firm

COTTON WASTE. — Prices on this commodity are holding firm, with higher tendencies noted. Business is said to be very brisk and jobbers are all busy. No new prices are immediately expected, although it is hard to state what the future will show, as the raw materials have been continually changing. The following are the present quotations:

WASTE

Cream, Polishing	....	0 25

WHITE

XXX	....	0 22½
XX	....	0 20½
X	....	0 18½
XC	....	0 17½
Japanese	....	0 17
XXX	....	0 24
XX, grad.	....	0 22½
XLCR	....	0 21
X Empire	....	0 19½
X Press	....	0 17½
X Special	....	0 15½

COLORED

No. 5	....	0 16¾
No. 1	....	0 16½
No. 7	....	0 15
No. 1A	....	0 13¾
No. 1B	....	0 11¾
Fancy	....	0 19
Lion	....	0 17
Standard	....	0 15
Popular	....	0 13
Keen	....	0 11

Above lines subject to trade discount for quantity.

Wrought Pipe Prices Have Been Advanced

WROUGHT PIPE.—New and higher prices have been made on wrought pipe, both iron and steel, and affects both lap-

ANNOUNCEMENT

The

H. Mueller Mfg. Company

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has arranged with the patentee for the exclusive rights to manufacture in Canada

Niedecken Mixing Valves

for showers

Niedecken Mixing Valves are recognized as the most efficient on the market. They are specified by the leading architects in Canada and United States. Full particulars with illustrated printed matter furnished on request.

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Limited

SARNIA, CANADA

weld and buttweld. Higher cost of raw material, labor, handling and hauling, not to overlook the recent advances which have been made on the price of coke, are all said to be factors for causing higher prices. The new quotations are as follows:

PIPE—WROUGHT

Price List No. 44—April, 1920.

STANDARD BUTTWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
⅛ in.	$6 50	$ 8 50	....	....
¼ in.	5 13	7 26	$ 5 43	$ 7 56
⅜ in.	5 13	7 26	5 43	7 56
½ in.	6 84	8 42	7 27	8 84
¾ in.	8 45	10 58	9 03	11 16
1 in.	12 50	15 64	13 35	16 49
1¼ in.	16 91	21 16	18 06	22 31
1½ in.	20 21	25 30	21 59	26 68
2 in.	27 20	34 04	29 05	35 89
2½ in.	43 00	53 82	....	....
3 in.	56 23	70 38	....	....
3½ in.	71 30	88 32	....	....
4 in.	84 48	104 64	....	....

STANDARD LAPWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
2 in.	$30 90	$37 74	$34 60	$41 44
2½ in.	45 34	56 16	51 19	62 01
3 in.	59 29	73 44	66 94	81 09
3½ in.	73 14	90 16	82 34	99 36
4 in.	86 66	106 82	97 56	117 72
4½ in.	0 98	1 23	1 24	1 49
5 in.	1 15	1 44	1 44	1 73
6½ in.	1 49	1 86	1 87	2 25
7 in.	1 94	2 43	2 42	2 90
8-L in.	2 04	2 55	2 54	3 05
8 in.	2 35	2 94	2 92	3 51
9 in.	2 81	3 52	3 50	4 21
10-L in.	2 61	3 26	3 25	3 90
10 in.	3 36	4 20	4 18	5 03

Terms—2% cash discount if paid within 30 days. Approved credit.

Plumbers' Compression Work Hold Unchanged

PLUMBERS' COMPRESSION WORK.—Notwithstanding the recent changes made on valves, compression work remains at unchanged prices. Business is seasonably good and a fair volume is moving. Some are looking forward to a big year and are preparing accordingly, it is stated. The following quotations are at present current:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	Net
J.M.T.	plus 5%
J.M.T. C	less 5%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Prices on Pipe Fittings Remain Unchanged

PIPE FITTINGS.—The new price recently made on this commodity is holding unchanged although the price is a firm one, and if anything the tendency is upwards. Business continues brisk and jobbers and manufacturers state they have difficulty in supplying some of the most popular sizes. The following are the present quotations:

PIPE FITTINGS

Cast iron fittings	Net list
Plugs	15%
Bushings	17½%
Unions, ¼-in. to 2½-in.	32½%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 65	0 80
Class B	0 28	0 38
Class C	0 19	0 28

Soil Pipe Quotations Have Been Withdrawn

SOIL PIPE prices have been withdrawn and higher quotations are looked for. Previous issues have been predicting higher quotations on this commodity for some time back and some have been surprised that the old quotations remained as long as they did. Manufacturers state that owing to so many factors that influence the manufacture of this commodity no one set of factors govern the situation. The higher cost of coke may be a great influence, however. The present demand is said to be a heavy one and manufacturers are turning out a large volume. However, it is believed that during the period of war so many stocks were exhausted that considerable will be required before stocks get back to normal, it is stated. The new prices have as yet not been issued; the following are shown merely as a guide:

Medium and extra heavy soil pipe, 2, 3 5 and 6 in.	10%
Medium and extra heavy soil pipe, 4 in.	15%
Medium and extra heavy soil pipe fittings, 2 in. to 6 in.	25%
8 in. extra heavy pipe and fittings	5%

Range Boiler Prices Have Been Withdrawn

RANGE BOILERS.—As intimated in recent issues of SANITARY ENGINEER the prices on range boilers were very unsettled and that some were expecting higher prices. The prices on this commodity have been withdrawn and new prices are pending. The demand so far this season has been of a heavy nature and shipments are going out as soon as manufacturers are able to complete the product. The scarcity of raw material continues to be a factor for higher prices. The advanced price of coke and other essentials in the manufacture are also to be counted. The following are the old prices:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$12 00	$14 00
35-gallon	14 00	16 00
40-gallon	16 00	18 00
52-gallon	22 00	25 00
66-gallon	35 00	38 00
82-gallon	40 00	47 00
100-gallon	50 00	58 00
120-gallon	60 00	67 00

Ingot Metals Stocks Light, Fair Demand

INGOT METALS.—Spelter shows a lower price, although present quotations are firm. Tin is a few points higher, quoting at 75 cents per pound. Fair demand is current for all lines and stock generally are light.

TIN.—A few points stronger is noted in the tin market and prices are being quoted at 75 cents per pound.

LEAD.—Stocks are none too plentiful and the situation is unsettled; 12 cents per pound is the price being quoted.

COPPER is in fair demand, stocks being rather light. The present price is 24 cents per pound.

SPELTER is holding at a firm price, the present quotation being 15 cents per pound, although this is somewhat lower than quoted in last issue.

ALUMINUM.—Prices are quoted around 36 to 37 cents per pound, the movement being quiet.

ANTIMONY.—Stocks are none too heavy, a fair demand offering; 15 cents per pound is the present quotation.

GARNISHEE LAW SATISFACTORY

Continued from page 18

"In my opinion," said D. W. Clark, Avenue Road, Toronto, "no amendment that can be brought up is worth the paper it is written on unless it makes the garnishee automatic weekly or monthly until the account is cleared. As it stands, the writ is far too expensive, both to the merchant and the creditor, to be worth the trouble when you consider the small amount obtainable on each writ. Why should a law defend a man who systematically works to defraud one who has given him credit? No grocer would enter a claim for garnishment unless he has given his debtor every reasonable chance to deal fairly."

"We would be satisfied," said Wm. Cole, 246 Avenue Road, Toronto, to SANITARY ENGINEER, "with even a small percentage rate of garnishment if the law provided that the account be settled before the writ is invalid. At the present time we have to be able to collect five dollars on writ before we have one cent for ourselves. It therefore doesn't even pay us for our trouble and in the majority of cases we stand to lose even the five dollars. The present law is not worth anything to the merchant nor would any amendment be satisfactory unless it provides that the writ is valid until the account is liquidated."

LONDON POT STILL BOILING

Continued from page 22

steadily becoming more acute and there are many citizens and sanitary and heating engineers also who are anxious to see a test case made and the matter settled once for all.

The matter of revising the plumbing by-laws is proceeding slowly. At the last meeting it was urged that all venting be eliminated, and it was claimed that by doing this the cost to the house owner could be reduced by $100 on an ordinary dwelling. The committee, it might be mentioned, does not include a single practical plumber, but is made up of men in various trades and professions. The chairman, Ald. Cunningham, is a dentist. Five of the best sanitary and heating engineers in the city are strong in their stand that the by-laws should remain in effect. They are outnumbered, however, by the committee.

To make matters worse from the standpoint of the inspector and also of the by-laws, is the opposition from small men in the trade. The old cry against "the ring" is being raised, and all kinds of representations are being made to the general public that the by-laws are aimed to put the small man out of business and throw everything into the hands of "the ring."

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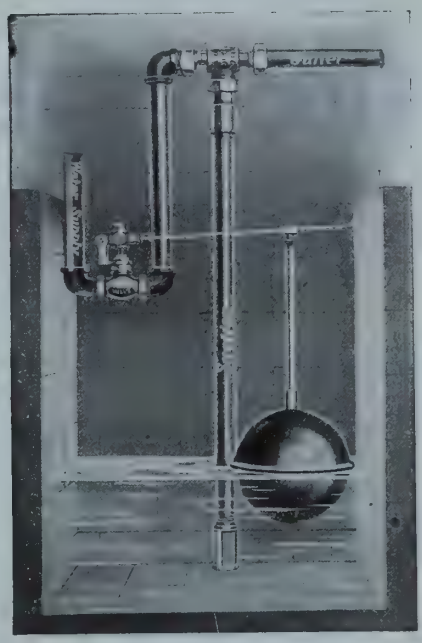

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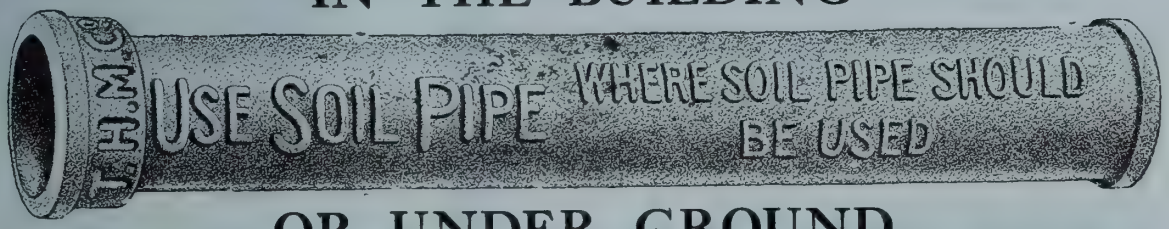

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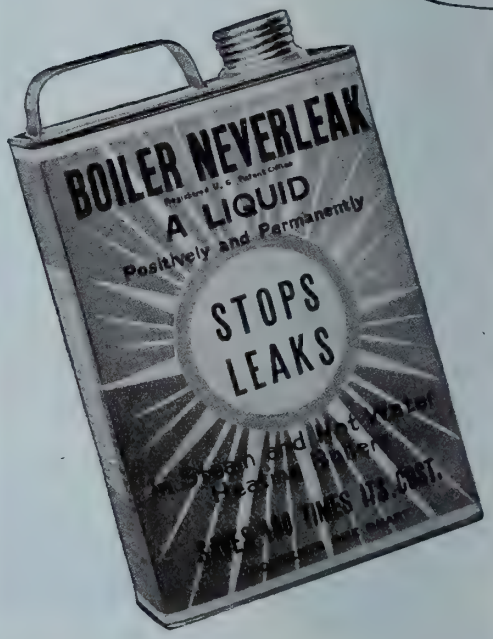

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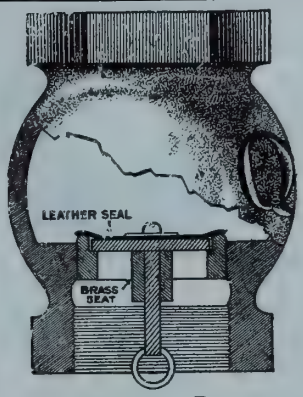

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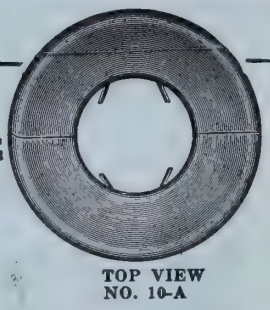

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High quality at the right price.

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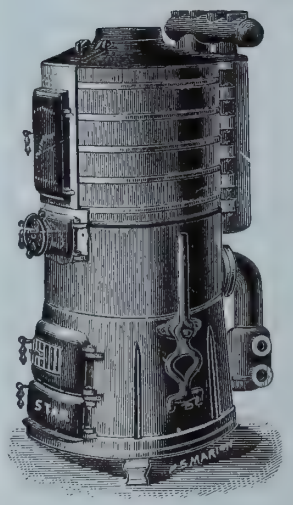

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The principal feature of the Star Boiler is that no other round hot water boiler has any coal-saving improvement not embodied in the "Star."

Then, too, while boiler installation and repair time is here, why not stock up with Star parts, for which O. Belanger has taken over the rights and is now making?

Many thousands of Star Boilers are in use requiring these repair parts hitherto unobtainable.

Write to us at once in time to catch the season's business.

We guarantee prompt deliveries.

O. BELANGER, REG'D.

Amherst Street

MONTREAL

Wrought Pipe

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Iron Co. Limited

Montreal

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Of Course There Are Good Reasons

Why Over 28,000 Plumbers and Fitters Stick to "X" Boiler Liquid!

A HARD headed bunch are the plumbers and fitters. They don't part with their money so easily—nor for any sentimental reasons.

When they buy a product they must know that it *delivers the goods!*

The 28,000 or more men who buy and use "X" Liquid know that it *makes good* with a remarkable degree of regularity.

They know that "X" Boiler Liquid will repair leaks or cracks as permanently as welding—in a small part of the time welding takes—at a small part of the cost of welding or replacing—and at a *greater profit,* all things considered.

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Properly used, "X" Boiler Liquid will add as much as $1,000 extra to a man's yearly profits.

The fact that "X" is the original Boiler Liquid and is now the biggest selling product, simply emphasizes that its leadership is founded upon merit.

Beware of Imitations!

It's an old story—every excellent product that is a *leader* has a lot of "me-too" products trailing along. That's why it's safe for the busy plumber or fitter to write his order plainly—"X" Boiler Liquid. And to be sure you're not getting a cement, or meal, but a *scientific process that prevents foaming* look for the "X" on every can before it is sent to the job. That's the *surest* way to avoid disappointment.

Every good jobber sells "X" Liquid, 99 out of every 100 manufacturers of boilers and radiators recommend, use and sell it.

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"X" LABORATORIES

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The four good points that make TRIMO PIPE WRENCHES superior are the SPIRAL SPRING always in place, STEEL FRAMES that will not break, NUT GUARDS that protect adjustment nut and the INSERTED JAW in handle that can be replaced when worn.

The Trimo Steel Handle Pipe Wrench is also made in the 6", 8" and 10" size with narrow jaws and fine milled teeth, especially adapted for close work.

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Hinged PipeVises *Pipe Cutters*

Pipe Threading Machines

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"BC" COMBINATION COLD ROLLED STEEL Floor and Ceiling PLATES

Carried by the leading supply houses

Putsjust the right finish on that heating job

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The Beaton & Corbin Mfg., Co. Southington, Conn., U.S.A.

The Old Original Company

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For steam, water, air, oil, gas, gaskets, etc. The cement that cements. Sets like gum. Allows no leaks.

The Great Value of "HAUSE PIPE JOINT CEMENT" lies in its peculiar chemical properties which permits of its hardening and expanding after the joints are made up. In making up joints it has the same effect as a lubricant on the best graphite, and while the joints may be made and broken readily, a perfectly tight joint is maintained at all times. Comes in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans, 100-lb. barrels. Manufactured in ready mixed and powder form. Ask your jobber for prices, or write us direct.

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BOILERS, RADIATORS, WARM AIR FURNACES AND REGISTERS

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The Brand that has the Quality

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A trial of the goods will prove this claim.

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With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS

With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

There Are Lots of Gate Valves

Advertised and Sold

but not all of them possess that neat appearance, combined with strength and stability, which characterizes

KERR IRON BODY GATE VALVES

Specify KERR'S (KEYSTONE) Iron Body Gate Valves on your next order, and let us prove what we claim for them.
Our Catalogue No. 5 tells all about them. It is yours for the asking. Write us to-day.
Approved by the Fire Underwriters' Association, and Registered by Boiler Inspection Departments of Ontario, Saskatchewan and Alberta.

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VitrO--Prestige

Not only because it is the original no-trouble tank, but because it has held *first place* since the day it was placed on the market.

There are engineers who insist on a VitrO being installed because they know it will give satisfactory service. It will not rot with dampness, is an all-one-piece tank, and cannot leak. Every fitting is tested and the manufacturer's guarantee stands behind each one. If the tank does not give service a new one will be installed at once.

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WE guarantee that should a VitrO Tank at any time prove defective through either material or workmanship, a new one will be given to the plumber by the jobber from whom he purchased it. In no case will credit be given to the jobber until the defective tank is returned and examined, and when a tank is returned same must be complete with all fittings; otherwise, credit will be given based only on the value of the goods returned.

Exception

This guarantee does not apply to defects caused by carelessness or abusive wear and practice.

Note

A VitrO Tank must not be returned because of a defective fitting or cover. A defective fitting or cover will be replaced at once; however, the defective one must be returned for examination.

When tanks are broken in transit, claim must be made against the Railroad Company.

Stocking VitrO One-piece Tanks means Speeding the Turn-over.

Dealers—your field is VitrO Tanks. Have you consulted a VitrO catalog? Write us.

Galt Brass Co., Ltd.

Galt, Canada

Sanitary Engineer
Plumber and Steamfitter of Canada
VOL. XIV. PUBLICATION OFFICE, TORONTO, MAY 1, 1920 No. 9

Absolute Shut-Off and Long Life

In selecting a quick-opening, compression basin cock of attractive design, two necessary qualifications must be considered—absolute shut-off and durability.

The Empire A415 embodies these qualities, together with a design that retains the beauty of the old style fuller basin cocks and caters to the popular demand for side lever handles. It works on the compression principle, insuring absolute shut-off and long life.

A415

China Side Lever Handle

Quick Opening, Compression Basin Cock

We can supply every need in side lever or any style of basin cocks.

Our lines are thoroughly tested before leaving the factory and are backed by the Empire guarantee of efficiency.

Place our facilities at your disposal. Write for our catalogue—specify your needs—we can be of infinite service to sanitary and heating engineers. We guarantee prompt delivery.

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A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

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Talk No. 257

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Gauges 20 to 28 inclusive

Good-sized pieces could be cut from these and would give **first-class stock at very low cost.**

If interested, write at once. In view of the extreme scarcity of sheet steel this is all the more important.

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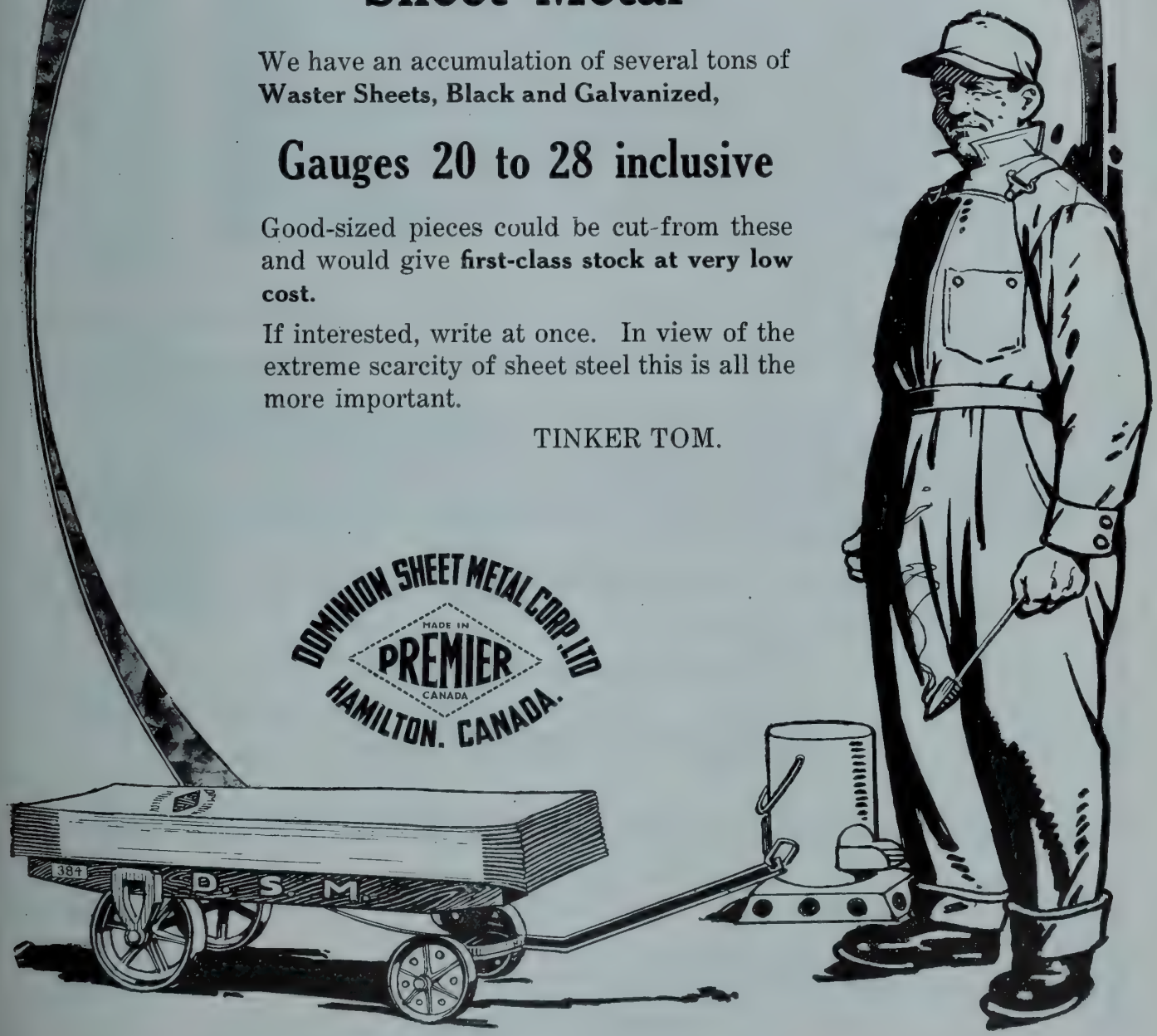
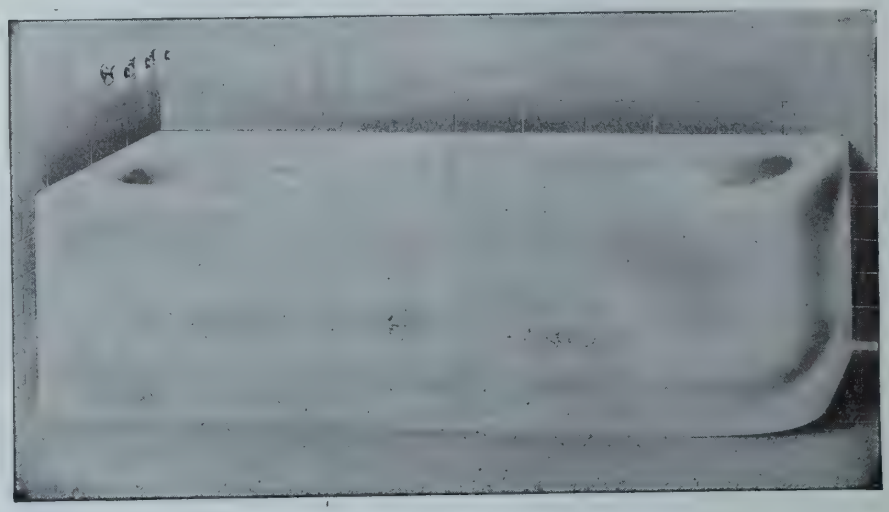


SANITARY ENGINEER, May 1, 1920, Vol. XIV., No. 9. Published 1st and 15th or every month at 143-153 University Avenue, Toronto, by the MacLean Publishing Co., Ltd. Yearly subscription price, Canada, $1.00; United States, $1.50; Great Britain and the Colonies, 4s. 6d.; elsewhere, $2.00. Entered as second-class matter at the Post Office, Ottawa. Entered as second-class matter July 1st, 1912, at the Post Office at Buffalo under the Act of March 3rd, 1879.

"Standard"
"Perfection" Built-in Baths

Made in One Piece Enamelled All Over



These Baths represent the last word in design and finish, and are made to build into Right or Left Hand Corner or into a Recess.

The "Perfection" Built-in-Bath is only 17½ inches high, therefore convenient. It builds into walls and floors, the absence of all dust-collecting cracks and corners meaning bathroom sanitation.

Made in 5 and 5½ foot sizes.

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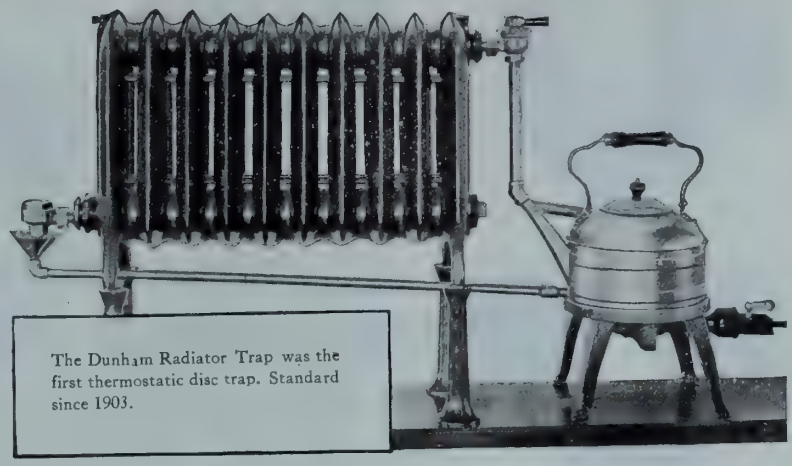
It was done at the Ottawa Technical School before a group of engineers who were amazed at the demonstration. It proved beyond question that low pressure steam will quickly heat a radiator to 100% efficiency if the trap is right. It undisputably proved that the Dunham Radiator Trap functions perfectly.

Since 1903 the Dunham Radiator Trap has been eliminating any chance of trap trouble in thousands of installations. It was the first thermostatic disc trap. Think of this when you think of traps, and remember that the Dunham Trap is only one element in Dunham Heating Service. The entire service offers much to the man who plans, sells and installs the heating system — and more to him who pays the bills.

If you welcome suggestions that do not obligate you, get in touch with our nearest office. Four authoritative information, write for booklet, "Data on Dunham Heating."



The Dunham Radiator Trap was the first thermostatic disc trap. Standard since 1903.

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Williams' Improved Vulcan Chain Pipe Wrench

The *only* chain pipe wrench made with proof-tested and certified chain. You know how much this means.

For 1/8 to 18-in. pipe—at your dealer's.

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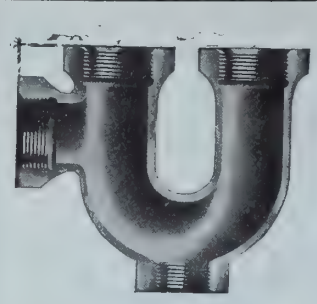
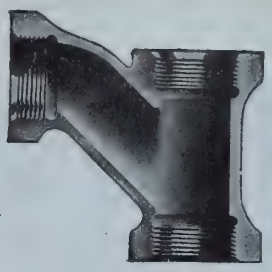

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The most popular Fittings for modern sanitary installations

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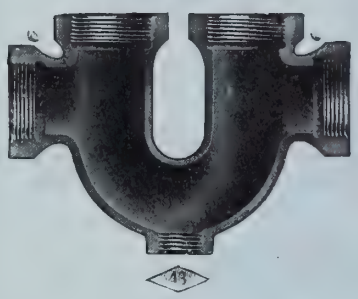
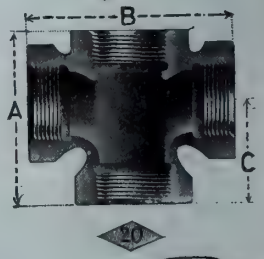
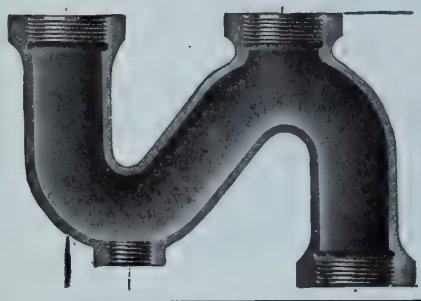
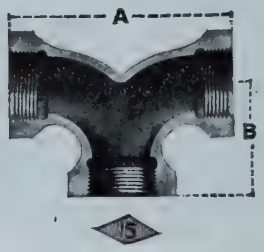
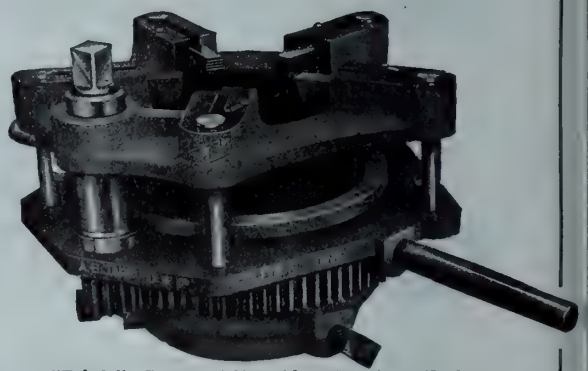





JARDINE and TOLEDO PIPE THREADING TOOLS



"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2½ to ½ in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or jim cracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

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CANADIAN BRASS GALT ONT

To the unsanitary, unclean, germ-collecting wood strip seat, and let it remain an error of the past. This date we announce to the trade and public in general our decision not to offer this fixture for sale, in fact it is off the market. Our action is supported by Health Boards and physicians throughout the Dominion and we know the Sanitary Engineer is with us in the move, in fact, scores have asked us to eliminate this construction.

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No. 201 Round Seat and Cover, full 1¼" stock in either golden oak or imitation mahogany, fitted with heavy Bar Post Hinges, N.P., having sufficient clearance between the bar and top of bowl to allow cleansing with a rag. It looks better, is better, lasts longer, and above all is sanitary. Wood doweled front and back of the seat opening straight grained and will not split. Same features apply to Horse Shoe and Blanco Seats.

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Advertised and Sold

but not all of them possess that neat appearance, combined with strength and stability, which characterizes

KERR IRON BODY GATE VALVES

Specify KERR'S (KEYSTONE) Iron Body Gate Valves on your next order, and let us prove what we claim for them.
Our Catalogue No. 5 tells all about them. It is yours for the asking. Write us to-day.
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Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?

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Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

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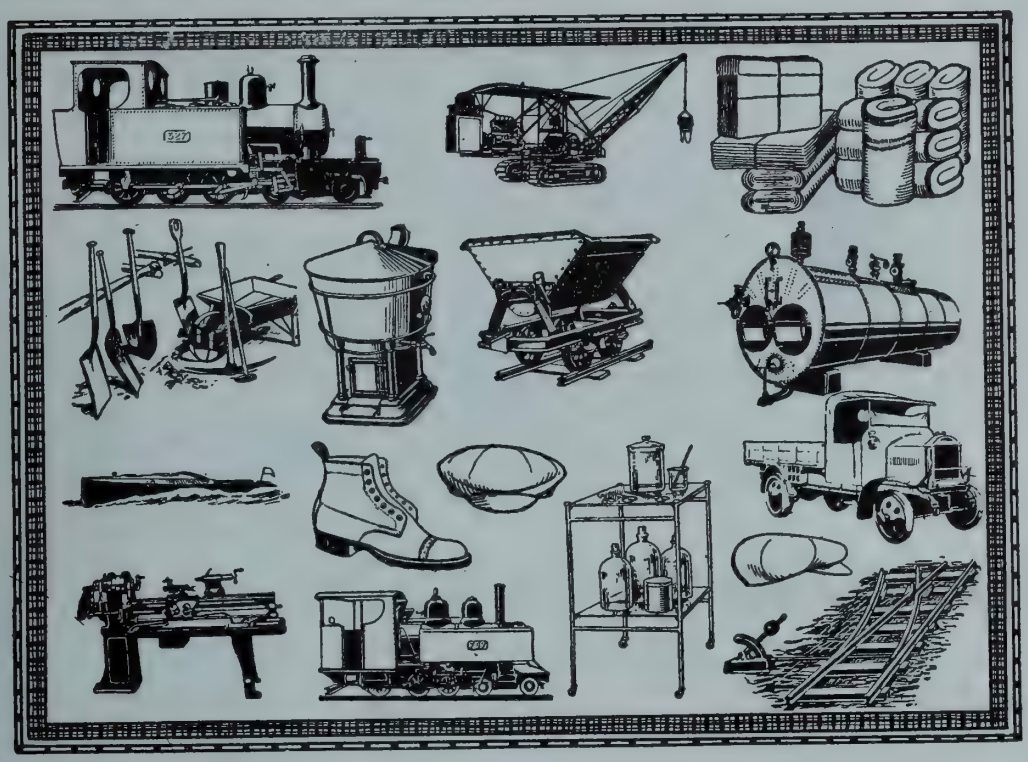

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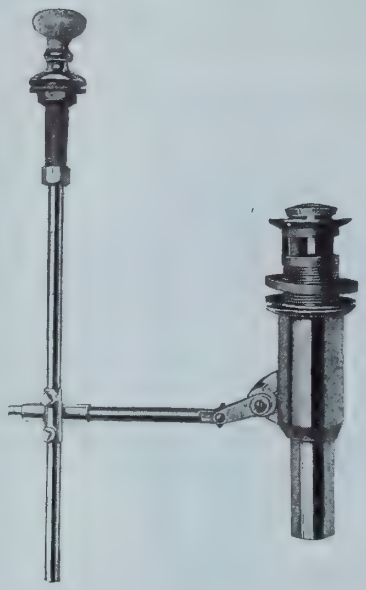

ALLINGHAM POP-UP WASTE

DESCRIPTION

Allingham Pop-Up Waste (Patented), Nickel-Plated, with China Waste Knob, indirect action (raising knob closes plug, lowering knob opens plug).

MEASUREMENTS

Diameter of flange under waste knob 1¾ inches. Diameter of flange inside hole 2⅛ inches. Diameter of flange below bowl 2⅜ inches. Outside diameter of outlet tube 1¼ inches.

The Allingham Waste is sanitary. The Waste Plug can be removed and cleaned without touching other parts. It is simple and mechanically correct. It is easily adjusted for friction or lift rod. It is reversible and can be easily changed from indirect to direct action if desired.

The Wallaceburg Brass & Iron Manufacturing Co., Limited

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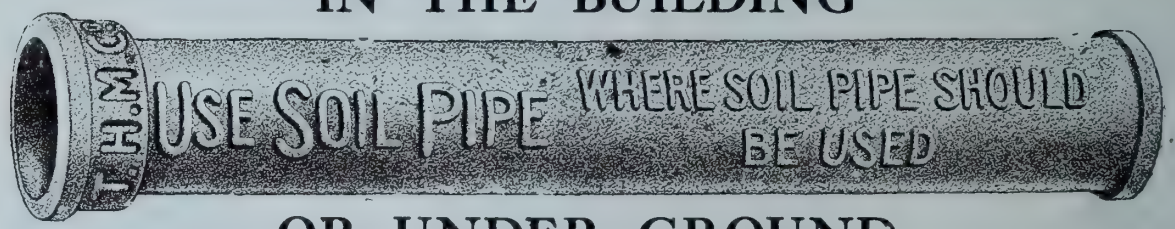
Mr. L. N. Vanstone	Moncrieff & Endress, Ltd.	J. R. Devereux & Co.

IN THE BUILDING



OR UNDER GROUND

ASK YOUR JOBBER FOR T.H.M. CO. BRAND OF SOIL PIPE AND FITTINGS.

TORONTO HARDWARE MFG. COMPANY, - Toronto, Canada

WE MANUFACTURE A FULL LINE OF HIGH-GRADE RANGE BOILERS

The

Trade K—T Mark

FOUNDRY

GALT ONT.

K-T

STANDARD

Soil Pipes and Fittings are of pleasing design and good finish. They look good and they **are good**

SPECIALS

Range Boiler Stands are adjustable to 30-35-40 gallon boilers, and you can connect directly under the boiler. Inexpensive but flawless.

Your jobber can supply our goods--if you ask for them

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Saw and Fine Edge Cutters

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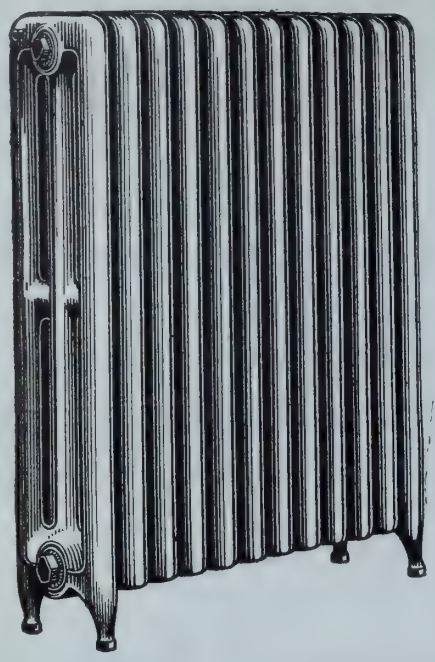
Even One Half Hour

spent reading your trade paper is time well spent. Then pass it on to your assistant, and let it help him to help you.

When Answering Advertisements Kindly Mention this Paper



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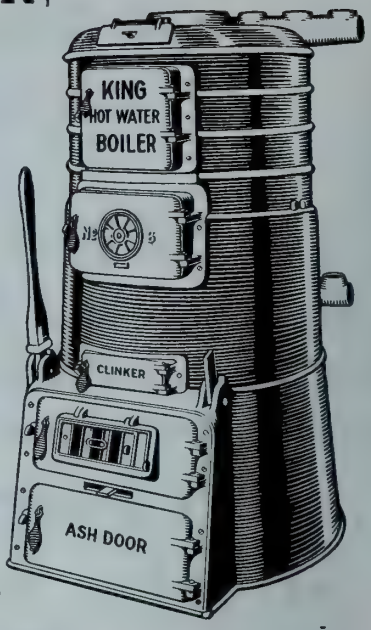
The King Boiler is a fuel saver and a great source of comfort. For this reason it is the kind any conscientious heating engineer can recommend. There is no prospect of lower prices, so contractors should urge customers to make their heating plans immediately.



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The Imperial Radiators, with their improved design insures quick circulation and rapid heating. Their graceful appearance gives an artistic finish to the room they are in.

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Manufacturers of Hot Water *and* Steam Boilers *and* Radiators; Fenestra Steel Sash *and* Concrete Reinforcing

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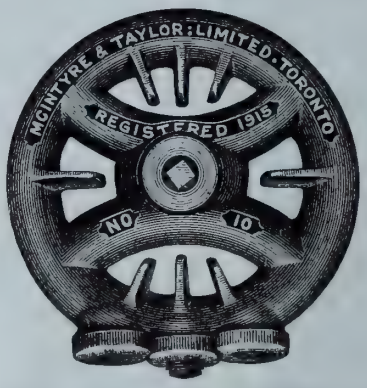
A Complete stock of all lines is carried at our Montreal warehouse.

M. & T. Coils

mean that perfect circulation is procured, that liberal waterways eliminate the possibility of chokage, all of which means durability and ots of hot water.



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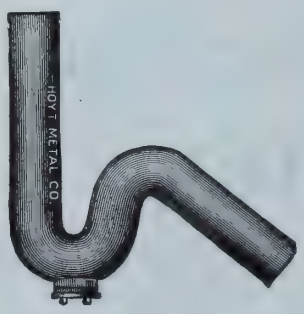

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Sales in 1919 over $10,000,000

HOYT METAL COMPANY

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With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

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Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

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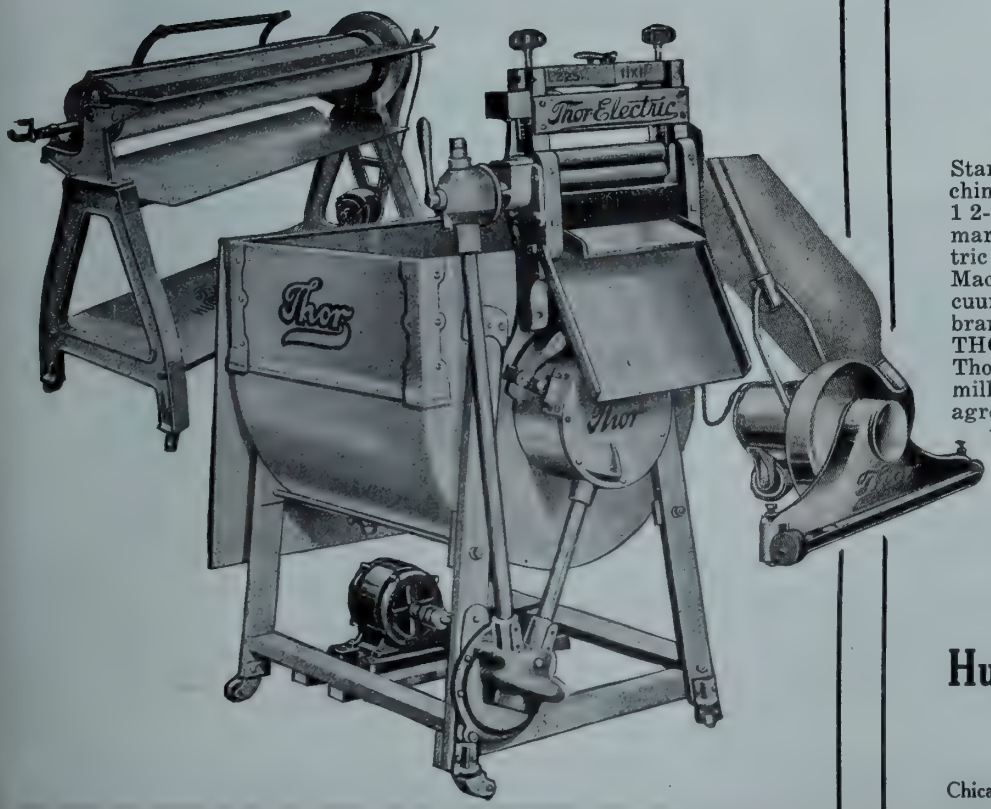

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Electric Washing Machine

Starting with the Washing Machine the Thor Line has grown in 1 2-3 style until now the Dealer can market the Big Three "Home Electric Labor-Savers"—The Washing Machine—Ironing Machine— Vacuum Cleaner—all backed and branded with a prestige name—THOR.

Thor is a tried product known to millions, through advertising or agreeable experience, and bought with confident readiness.

Let us show you how the Thor has made good for dealers in the plumbing and electrical trade and will make good for you.
(See the Cowan story on Page 23 of this issue.)

Hurley Machine Co.

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TORONTO

Chicago New York

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 — PUBLISHED TWICE MONTHLY

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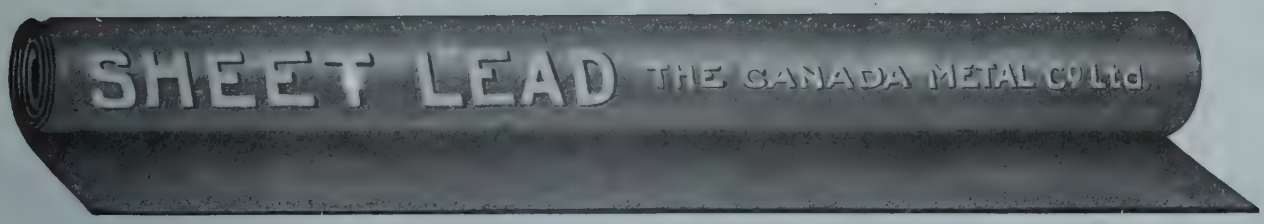
We can make prompt shipments from stock.



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Hamilton
Montreal

TORONTO

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A New Way to Prevent Leaks

LEAKS, as you know are apt to occur in new installations in spite of the most careful work.

Now, however, it is no longer necessary to waste valuable time tearing down your new installations to locate and repair the leaking threads, gaskets, valves or sand holes.

On your next installation, after firing up and cleaning out the system, add to the water the same quantity of Boiler SE-MENT-OL you have always used to repair leaks in old boilers. It will find all leaks at once and seal them quickly, without causing foaming or leaving a disagreeable odor. Figure in this SE-MENT-OL as *insurance* of a *Leak-proof job.*

Boiler SE-MENT-OL is sold everywhere in handy, cone-topped quart and gallon cans which reach the most awkward places without spilling. No funnel needed.

There's a coupon below

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A metallic paste for sealing holes too large to be bridged by a liquid. Hardens quickly, forming a permanent metallic repair. Used with Boiler Se-Ment-Ol, which seals the smaller openings and crevices around the hole, it makes an absolutely leakproof repair.

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SE-MENT-OL
REG. U.S. PAT. OFF.
1 QT US STANDARD 5/6 QT IMPERIAL MEAS
NORWESCO
Marietta Ohio
The Chemically Correct Line
TRADE MARK REG. U.S. PAT. OFF.
REPAIRS LEAKS IN HEATING SYSTEMS QUICKLY AND PERMANENTLY
FINDS THE LEAK AND FIXES IT
ALL YOU NEED FOR LEAK REPAIR JOBS

The Northwestern Chemical Co.

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Canadian Factory, Montreal

THE NORTH-WESTERN CHEMICAL CO.
1805 State St.
Marietta, Ohio

Gentlemen:—Please send me your special discounts and the name of the nearest jobber who sells *Boiler Se-Ment-Ol.*

Name_____

Address_____

Established 1907 Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO, MAY 1, 1920 No. 9

London By-law Revisions Go to Board of Works; Both By-laws and Revisions Invalid, Says Prov. Sanitary Engineer

Board of Works Said to Have Instructions to Eliminate Objectionable Regulations—To be Strictly Sanitary Measure—Approval of Provincial Board of Health Not Been Sought Yet, Says F. A. Dallyn, C.E.

LONDON, Ont.—The much discussed plumbing by-law of this city is now in the hands of the Board of Works, to whom the recommendations of the special committee deputed to revise the by-law, was passed for further consideration. The members of the Board of Works are said to be under instructions to eliminate objectional regulations respecting elaborate and costly venting systems and provisions that added to the cost of tiling and drainage installations. It is the opinion that when the by-law comes back to the City Council it will be a strictly sanitary measure. Pending the reenactment of a satisfactory ordinance the Council has issued instructions that the installation of plumbing be permitted under the old Provincial Headth regulations.

In carrying out the revision of the by-law, Ald. E. R. Seabrook, Chairman, with the aid of the committee made the following changes before sending on the revised draft to the City Council. It was decided that water works fixtures and installations should no longer be under the inspection supervision of the Medical Health Officer directly. That repairs to fixtures could be made by the householder or authorized plumber without securing a permit.

Cast-Iron Pipes.

Cast-iron pipes under buildings were approved at the meeting, as it already existed in the by-law. Such material was generally conceded to be better than tile pipes, but those having tile already installed were specifically allowed to continue their use, when repairs had to be made, if the public health was not affected.

Private garage drains were not to be included in the regulations covering the draining of public garages. Double houses may have one outside sewer connection serving both houses, but each house is required to have a separate sewer service.

HARD TO ENFORCE GOOD BY-LAW WHERE EARLY PLUMBING WAS DONE BY TINSMITHS

That the new plumbing by-law of the City of London and the proposed revisions now being considered, are both invalid because neither have been approved by the Provincial Board of Health, was the statement to SANITARY ENGINEER of F. A. Dallyn, C.E., Provincial Sanitary Engineer.

Asked as to the significance of the situation Mr. Dallyn pointed out that the London City Council had evidently not consulted legal advice in regard to the matter. "It is much better for a municipality to have the approval of the Provincial Board because they can then pass to the Board any responsibility in connection with complaints," said Mr. Dallyn, also pointing out that when working on an invalid by-law the municipality cannot issue debentures for the raising of funds because the banks will not lend on such security.

When the point was raised that a number of plumbers in London were taking definite objection to the so-called "frills" necessitating elaborate and costly installations, Mr. Dallyn remarked that it was "difficult to enforce a good plumbing by-law in a municipality where the early plumbing was all done by tinsmiths."

"Under those conditions a requirement for back venting alone is enough to completely upset them," added Mr. Dallyn. "A good plumbing-by-law does not necessarily increase the cost of plumbing but rather tends to decrease the total expense."

Elaborate construction that could be installed in a simpler manner and more economically was condemned in many instances. Weight of iron pipes up to seven inches in diameter was to be classified as "medium." It developed that such pipe could not be obtained in the extra heavy grade and the whole matter was found to be a mistake in reading of the Provincial by-law.

The committee consisted of the following: Aldermen Bridge, Cunningham, Drake, Seabrook. Messers. E. Hayman, R. G. Wilson, C. P. Wright, Jack Eggett, H. C. McBride, Ben Noble, J. R. Hazlett, E. H. Russell, George Hyatt, George Irons, T. Hodkinson and J. E. Charlton.

Regulation Under Which Plumbers Are Working

Pending the adoption of the new plumbing by-law, the regulations under which plumbers in London are working are as follows:

A permit shall be taken out for all work except necessary minor repairs, and a plan of same filed in this office.

A water test shall be required on all roughing in, but the smoke test on the finished work may be dispensed with.

Material to be used as follows: Soil pipe, medium up to and including 6-inch above, and below ground 7-inch, and over to be extra heavy.

Lead bends, traps and waste pipe to be equal in thickness to 8-pound sheet lead.

Brass ferrules, soldering nipples, thimbles and tubing shall be regular by-law material.

No fixture shall be required to be vented except it is more than eight feet distant from the soil stack to which it is connected.

Permits must be taken out for laying all tile drains, and plans must be left with the plumbing inspector. There will

Continued on page 16

Promote Interests of Industrial Peace

Ontario Society of Sanitary Engineers Holds Important Conference in Hamilton—Committee to Consider Prevention of Strikes and Lockouts

A MEETING of the Directors of the Ontario Society of Domestic Sanitary and Heating Engineers with representatives from various centres from Niagara Falls to Stratford and Toronto, was held in Hamilton to consider the existing industrial conditions in the plumbing and heating industry.

Secretary G. Frankland stated to SANITARY ENGINEER that the underlying idea of the meeting was an endeavor to insure industrial peace, particularly in view of the threatened labor unrest said to be contemplated for May 1.

The meeting decided to appoint a committee to confer with a like committee from the United Association of Journeymen Plumbers and Steam Fitters in the Province of Ontario for the purpose of considering ways and means of preventing strikes and lockouts, and to facilitate peaceful adjustments of all grievances. and disputes arising between the employers and employees in the plumbing and heating industry throughout the Province, as well as to maintain industrial peace and advance and promote the best interests of the plumbing and steam and hot water heating industry.

Electricity Dearer Than Coal for Heating Houses

Engineer Sifton, of Hamilton, Says Electric Heating Found to be Impracticable

THAT the heating of houses by electricity has recently been investigated throughout Canada and the United States, and has been found impracticable, is the statement of Engineer E. I. Sifton, Hamilton, Ont. He states that the electricity needed to heat a house would cost more than three times the price of coal.

With the price of coal soaring and the natural gas supply dwindling, the question of using electricity for heating purposes is again receiving much attention.

"To heat a six-room house it would cost more than three times as much to do it by means of electricity as with coal, even with the present high prices of the latter commodity," says Mr. Sifton, adding that at present any plans to heat houses by electricity would be against all common sense. There are many better methods of using the current than for heating purposes. The power was not doing the maximum amount of work of which it was capable when it was being used for warming a house.

To heat a six-roomed dwelling it would probably require about six or seven horse-power, Mr. Sifton said. When it was taken into consideration that there were 20,000 homes in Hamilton, the futility of such a project could be easily seen. To heat all the homes, it would take approximately 120,000 horsepower. Hamilton's present consumption was just 18,000. If the city were supplied with the tremendous horsepower necessary to heat all the homes, special rates would have to be charged, as the "juice" would only be used for about seven months in the year. The other five months, the consumption of power would be just about the usual eighteen thousand horsepower. The Hydro commission would be faced with the problem of a hundred thousand horsepower during the summer season, when the loads were the lightest.

PLUMBER BEEN MADE THE BUTT OF THE CHEAP WITS

A London, Ont., daily, taking up editorially the cudgels of the plumbers in connection with the differences over the plumbing by-law of that city states in part as follows:

"In justice to the trade it must be said that the plumbers ridicule the assertions made at the last Council meeting, and it may be as well to wait until the committee's report has been presented before passing judgment. The plumber has long been made the butt of the cheap wits. He has been pictured as the haughty millionaire, the man whom nobody but the wealthy can afford to employ, and all that sort of thing, whereas what we really know of him is that as a rule he is a good citizen and that what money he possesses has been earned by good hard work. Meantime, if the by-law can be made of real value by amendment, let it be amended; if it is proven to be unnecessary and to work hardship on anybody, then let it be repealed.

HEALTH AUTHORITIES THREATEN CHATHAM

Chatham.—It is predicted by Dr. T. L. McRitchie, Medical Officer of Health, that if definite steps are not taken within a reasonable time to solve the water problem drastic action might be taken by the health authorities.

Asked as to what this action might be, the doctor intimated it might mean the shutting off of water to the local industries. This would relieve the present plant, which is now overloaded, so that it would be in a position to supply water for domestic use at all seasons.

The water situation is in a deadlock. In January two by-laws were submitted. The people voted in favor of the Thames River as the source of supply instead of Lake Erie. But the by-law authorizing the expenditure of $371,000 for the erection of a new plant on the river was defeated. The present plant is inadequate to supply both the domestic and the industrial consumers.

PRODUCTION OF STRUCTURAL MATERIALS IN CANADA FOR 1919

Production of structural materials in Canada for 1919 was to the approximate value of $173,000,000, according to a preliminary report issued by the Department of Mines, Ottawa. The principal items included in this report were as follows: Portland cement, 4,991,340 barrels, $9,783,393; common brick, $3,723,033; pressed brick, $1,257,833; fireproofing, $359,882; hollow building blocks, $63,275; kaolin, $13,744; pottery, $187,574; refractories, fire clay, etc., $380,934; sewer pipe, $1,061,010; terra cotta, $2,861; tile drain, $607,792; lime, $2,268,432; sand-lime brick, $377,040; sand and gravel, $1,687,991; slate, square, $10,853; granite, $968,111; limestone, $2,708,625; marble, $213,982; sandstone, $78,327; stone, $3,969,045.

1,000 ENGINEERS TO MEET

Montreal.—One thousand of the big engineers of Canada and the United States, especially those engaged as managers and superintendents of waterworks, consulting engineers, etc., will meet in Montreal in the week commencing June 21 at the convention of the American Waterworks Association.

LONDON BY-LAW REVISIONS GO TO BOARD OF WORKS

Continued from page 15

be no fees nor inspection in connection with this.

Any person convicted of a breach of any of the provisions of this by-law shall incur such penalty as is provided in section 33, schedule "B," of the Public Health Act.

Clothes on Line Across the Sidewalk Secures Attention and Sells Washers

Novel Scheme Adopted by Cowans, Brantford, Brings Better Results in One Week Than in Previous Campaigns of Two or Three Weeks—Wash Dirty Clothes and Hang Them on Line Before Customers' Eyes

IF originality is the inspiration of good advertising, then Cowans, of Brantford (plumbing and electrical dealers), are entitled to a fair share of the laurels for the manner in which they conducted a recent sale of electric washing machines.

clothes hung over a down-town business street naturally caused quite a sensation and attracted no little attention from passers-by and indeed from almost everyone who traversed any part of the street, for the unusual occurrence encouraged investigation.

Unique display of electric washing machines by T. A. Cowan, Brantford, brought better results in one week than in previous campaigns lasting two or three weeks. Dirty clothes were washed right in the store and then strung on the clothes line across the sidewalk. Two machines were placed on the sidewalk and acted as distributors of literature. The underlying idea was to do something novel in order to attract attention and then secure interest by the actual operation of the machine in the window and showroom.

In order to make sure that as many of the citizens as possible would know about the sale, a clothes line was strung from the outside of the store-front across the sidewalk to a street post. On this line were hung the first lot of clothes washed with the machine. The appearance of

In the photograph shown herewith it will also be noted that a clothes line was hung in the store window, close to the glass. On this line were hung four towels, each towel bearing a letter and in combination spelling the name of the particular washing machine handled.

Washing Machines on the Sidewalk

On the sidewalk in front of the store two new washing machines were placed with booklets and other literature on them dealing with the use of electric washing machines in the home. The underlying idea of this plan was to reach those who might be "afraid to come into the store for fear we might sell them a machine before they got out," as Mr. W. B. Hutton, sales manager, explained it.

In the store window one of the machines was shown in operation with water, soap and clothes in it. Attractive window cards explaining the distinctive features of the machine and others extending a welcome to all to further investigate the advantages and facilities of an electric washer, were placed in prominent locations behind the glass store front. Other cards illustrative of the advantages of electrical appliances were displayed on the window casement.

In the showroom a machine actually washing the clothes was on display and a demonstrator was on hand to show how the machine washed the clothes, how dry they were wrung and how clean they were after being washed. A goodly supply of dirty clothes were kept and these were kept on the floor so that there would be no question about their being really dirty when put into the machine.

The washing machine campaign was carried on for one week only, but by keeping it alive and interesting, Mr. Hutton states that better results were obtained than during previous campaigns lasting two and three weeks.

"The idea was to make the people act quickly and not have a chance to think of the price of the machine for two or three weeks. We realize that every machine sold will sell another in its vicinity. Our sales were over double those made in any previous campaigns," said Mr. Hutton.

A series of good, live letters were sent out to all the prospects for the purchase of a machine and telephone calls were extended to all of the better grade of prospects. It was demonstrated that the idea was not merely to sell machines, but to show how well and how easy washing could be done by the use of electric washers. Advertisements in large space were carried in the local newspapers to give publicity to the campaign and indicate why people should come to see the operation of the machines.

There are a number of points bearing special significance in the campaign as conducted by Cowans. Firstly, in order to make any such campaign a success it is necessary to adopt something original, as was done in this case. When once the interest has been secured, it is necessary to hold the attention so that there will be an opportunity of imparting the desired information. After that it is a question of appeal. Cowans used a clothes line strung across the street to attract the first attention, in conjunction with newspaper advertisements. A machine in running order in the window was the next step, and upon answering the welcome extended through the medium of window cards, the visitor proceeded to the showroom where a machine was actually washing the dirty clothes and turning them out spotlessly clean.

Cowans is known as "The Blue Front Store" in Brantford and a substantial business in electrical goods is conducted. In the sale of electric washing machines it has been the experience that an appeal from the standpoint of labor-saving and in dealing with prices to talk of the cost to operate per hour in cents, are effective in purchasing this or any electrical appliance where the first cost appears high.

Novel Work Record Used by Hamilton Plumber

Work Slip Covering Workmen's Instructions Has Sections for Remarks on Other Fixtures—Plan Brings Business, Says W. J. Walsh

A REPRODUCTION of a work slip as used by W. J. Walsh, sanitary engineer, Hamilton, Ont., appears herewith. Mr. Walsh has adopted this form in connection with his business and in a recent interview pointed out to the representative of SANITARY ENGINEER that the workman goes out with his instructions on the slip. It will be noted that along the sides of the section "Work to be Done" appear columns for remarks, headed: Bath, Basin, Closet, Boiler, Gas Heater, Toilet Trimmings, Faucets, Sink. The workman must report on all of these. A short time later the inspector goes around to look over the job and he then makes recommendations re the other matters. Mr. Walsh says this plan pleases the householder and results in good business.

ORDER GIVEN.....

W. J. WALSH

PLUMBING 215 King Street East, Hamilton, Ont. HEATING

M..... Credit .....

Your Order ..... Plumber .....

REMARKS	Work to be Done	Remarks
Bath		Gas Heater
Basin		Toilet Trimmings
Closet		Faucets
Boiler		Sink

NIAGARA FALLS CARRIES $250,000 SEWERAGE BY-LAW.

Niagara Falls, Ont.—The by-law to raise $250,000 for the construction of a trunk sewer, was carried by nearly five to one.

Form Plumbing and Drainage Inspectors' Association in Ontario

To Standardize Materials and Working Conditions—Only Bona-fide Inspectors Allowed Membership — To Exchange Practical and Theoretical Knowledge

A NEW association has been formed by the Plumbing and Drainage Inspectors of Ontario. This new association will be known as The Plumbing and Drainage Inspectors of Ontario and has been formed with the object of standardizing and improving working conditions as well as materials, etc., throughout the trade in the Province of Ontario.

The first meeting was of a preliminary nature and was devoted to drawing up rules and regulations, appointing and electing officers, etc., G. W. Broomfield, Brantford, Ont., was elected president; W. H. Meadows, Toronto, secretary; S. Daughtry, Ottawa, Ont., treasurer. An executive committee was also appointed which consists of five members as well as the above mentioned officers.

The vice-president has not as yet been appointed. The election for this office will be made to complete the organization at the next meeting of the association which will be held in Toronto during the Exhibition in September.

Many prominent men were present at the first meeting. F. A. Dallyn, C.E., gave a very interesting address and thoroughly discussed the new proposed plumbing regulations. J. W. Bruce and T. J. Burke also spoke and described various interesting conditions of plumbing they had seen throughout the Province, and pointed out the necessity for forming a society such as that proposed which would have the welfare and uplift work of the plumbing and drainage systems of the Province at heart, and which would work out to the benefit of all concerned incidentally putting all work in the different municipalities on a more equal footing.

In discussing the new association with the Secretary, W. H. Meadows, chief plumbing inspector for the city of Toronto, SANITARY ENGINEER was informed that the plumbing and drainage inspectors generally throughout the Province of Ontario were of the opinion that standardization in working conditions and materials should be more universally adopted and that while some municipalities were using the most modern and up to date methods, there were some that were not abreast of the times. Then again in the case of jobs that were somewhat out of the ordinary there were cases where opinions and rules were somewhat conflicting. It will now be possible to refer cases of this nature as well as other problems to the new association which, as a representative body, would be able to adopt standard methods and specifications, and when put into force these would act as a precedent in other cases and in this way eliminate the many other methods which they believe would eventually become confusing and leave room for disagreement.

Only Bona Fide Inspectors Allowed Membership

Another advantage, pointed out by Mr. Meadows, was the fact that in order to belong to the association it is necessary for the members to be bona fide inspectors, in this way insuring competent and practical men who would have a thorough and practical knowledge of the trade. This being the case, it is his belief that any suggestions regarding plumbing or drainage regulations or the design and installation of plumbing or drainage systems would have a greater value coming from a body of efficient experts in the trade and would naturally carry more weight with the Government, municipality or trade as a whole.

Mr. Meadows is very optimistic for the future value of the new association and believes that with proper co-operation all classes of work pertaining to the trade will be raised to higher standards, especially as all members would be in a position to suggest plumbing regulations that would govern the design and installation of plumbing systems with a view of being universally adopted, giving the cities and towns and all municipalities the bentfit of up-to-date and advanced methods.

Another commendation would be that the standardization of methods, materials and plumbing regulations would have a tendency to conserve materials and commodities and eventually prove a benefit to all concerned.

The following schedule of aims and objects of the new association and membership regulations were drawn up:

AIMS AND OBJECTS

(A) To suggest plumbing regulations which shall govern the design and installation of plumbing systems and to encourage the adoption of such regulations.

(B) To advance the standard of plumbing and drainage by the reading and discussion of papers and interchange of practical and theoretical knowledge and experience.

(C) To encourage and promote governmental legislation requiring the appointment of inspectors of plumbing and drainage.

CONSTITUTION

The officers shall consist of President, Vice-President, Secretary-Treasurer and also an executive committee which shall consist of the above-named offices and five other members to be elected at the annual meeting.

Qualifications for Membership

Any bona fide Government or municipal inspector of plumbing or drainage shall be eligible.

(a) This shall mean an officer appointed, either by the Government or any municipality in the Province of Ontario, for the purpose of inspecting the plumbing or drainage of any house, factory or other building wherever within its jurisdiction.

(b) A drainage inspector shall mean an officer appointed as described in preceding paragraph, whose duties are supplementary to those of plumbing inspectors.

The term "Inspector of Drainage" shall not include inspectors employed on drains on public thoroughfares.

AMERICAN WATERWORKS ASSOCIATION CONVENTION IN MONTREAL

Montreal, Que.—It is announced that the American Water Works Association will hold its 40th annual convention in this city the week of June 21. The headquarters of the convention will be at the Windsor Hotel, and the Windsor Hall will be used as an exhibition hall in which American and Canadian manufacturers of all kinds of water works equipment will have exbibits. Papers will be read on matters of particular interest to water works men. Professional meetings will be held every day of the convention.

The convention will bring together some of the most prominent hydraulic engineers of the United States and Canada. It is announced that some important papers on water supply problems and conditions will be submitted. Mr. F. A. Barber of Boston, will read a paper on the St. John, N. B., water works system, and it is understood that Mr. T. W. Lesage, former Superintendent of the Montreal water works, will contribute a paper on the local aqueduct sysem.

The membership of the American Waters Works Association consists of managers and superintendents of water works, also consulting engineers and chemists.

WATERWORKS SYSTEM FOR ALMONTE

ALMONTE, Ont.—It is very probable that a waterworks and sewerage system will shortly be contemplate for this town. A definite proposal is expected to come before the Town Council within the next few months. No fixed policy for permanent street paving is being entered upon, pending developments regarding waterworks.

Much Vancouver Plumbing Said to be Menace to Public Health

Vancouver Association of Sanitary Engineers Submits Recommendations for Licensing and Registration of All Plumbers

VANCOUVER, B. C.—Claiming that a large proportion of the plumbing work in the city was not done according to the city health by-laws and thus constituted a menace to the health of the city, a delegation comprising Messers C. W. Murray and Jesse Anderson, representing the Vancouver Association of Sanitary and Heating Engineers, waited on the Civic Health Committee and submitted recommendations that all plumbers in the city should be either registered or licensed. They claimed that even the registering of plumbers would greatly obviate the menace to public health of work done in a slipshod and dangerous manner by so-called "handy men" and save the citizens much annoyance and expense.

Their contentions in regard to unsanitary plumbing jobs were corroberated by Chief Inspector Jos. Hynes, who said he had found many cases where Japanese and Chinese were doing work that did not only not comply with the by-laws, but was a positive menace to the health of occupants of such and nearby houses. He mentioned several cases of this nature which he had discovered. At present there was no penalty provided for a man doing plumbing work without a permit. Neither was there any official examination of plumbers as there has been in previous years.

On motion of Ald. Rogers the request of the Sanitary Engineers' Association was referred to the building inspector, plumbing inspector and city solicitor to report to the City Council on the city's legal powers. It was intimated that the Council would formulate a policy in regard to this question.

More Activity in Building

WITH the return of weather conditions favorable to outside construction work building throughout the Dominion has opened up on a scale which far exceeds the corresponding period a year ago. New totals for building permits have been piled up, and last year's record to date is far surpassed. This in spite of the fact that the ascending prices for building materials and labor continue. The higher costs must be considered, however, as a factor in this year's higher total.

The total value of building permits issued during the month of March was $7,850,460 as against $3,303,440 for the corresponding period a year ago. The returns for the first three months of the year reveal a very large increase over last year and indicate a revival of building activity in Canada on a scale not experienced since the years before the war. For the first three months building permits totalled $16,138,556 as against $6,383,973 a year ago, or an increase of $9,754,583. Practically all important municipalities have contributed to this increase. The twenty-four cities of the Eastern Provinces record a total of $5,588,644 in building permits and the fourteen cities of the West, $2,261,816.

Building has been resumed on an extensive scale in Toronto, and the total for the month of $2,062,747 is far in excess of the records of her nearest rival and constitutes a record for building in Toronto this year. Montreal shows a revival also with permits issued to the value of $945,496 as against $228,208 for March a year ago. Other Eastern cities which have piled up substantial totals are Halifax with $226,435; Quebec, $392,524; Hamilton, $311,225; Kitchener, $319,690; and Windsor, $288,395. In the West Edmonton displays a marked recovery. In March, 1919, building in that city was practically at a standstill, the value of the permits issued being $2,200. This year the total is $600,650. Values for Winnipeg for March of the present year are $559,900 as against $42,700 a year ago. Regina's total is $263,750, an in-

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Some Afterthoughts of the Convention

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ON THEIR return trip to their home across the lake, two sanitary engineers who had attended the recent convention of the Ontario Society, Domestic Sanitary and Heating Engineers were overheard discussing various matters pertaining to the trade. The Convention had served the purpose, encouraging some thought as to ways and means of improving conditions. An interesting point brought out was the advisability of teaching the plumber cleaner methods in the dispatch of his work. This applied to his tool kit and to his method of procedure when on a job. It was thought if the plumber would throw away all the old ends of carving knives, etc., from his kit that he would present a more businesslike appearance.

A controversy arose over the question of a plumber's cleanliness in handling the job. The opinion was expressed by one of those engaged in the discussion that if a plumber took a little extra time to clean up and make sure that no grease marks were left on walls or woodwork from his hands or overalls that he would be advised by the customer that his time was too expensive to be used for that purpose. The other replied that this was part of the educational work which the plumbers would have to undertake, that it was the plumber's duty to clean up after completing a job and that he was entitled to charge for time used for this purpose. More may be heard about this question at the Canadian Convention.

* * * * *

Mr. John Wright, Chairman of the Sanitation and Legislation Committee of the Ontario Society, believes that it would pay each plumber to have his own smoke test machine in order to save much time when a job has been completed. The idea is that when a job is completed the plumber could summon the inspector on short notice and facilitate the inspection by using his own machine instead of having the inspector to bring one.

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While no official meeting between the committees appointed by the manufacturers and supply houses and the plumbers have as yet been held, there have been a number of individual discussions as a preliminary and steady progress is being made toward the desired end as expressed by both sides at the recent convention. Mr. John Wright states that evidence of the value of co-operation between manufacturers, plumbers and labor is everywhere apparent. Plans will be formulated along the line of co-operation, educational and publicity work.

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Looking back over his many years of activity in the plumbing trade, Mr. John Wright, whose firm is one of the oldest established in Toronto, pointed out the significance of the honesty displayed by the trade during those years. "While the average plumber is very strongly tempted to confiscate private property while carrying on his work in the homes of his customers, the reputation of the Craft for honesty stands very high," says Mr. Wright, adding that this is perhaps partly due to the strict apprenticeship rules of the last generation of master plumbers who insisted on the utmost honesty from their employees.

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As chairman of the Committee of Sanitation and Legislation Mr. Wright is in receipt of many complaints and questions and is acting between the trade and the Government in the settlement of difficulties. He will have a number of these questions prepared for discussion at the Canadian Convention.

Arguments Favoring the Main Trap and Fresh Air Inlet

Ventilation of Drains Necessary to Free Corroding Gases and Protect Pipes—Use of Intercepting Trap Facilitates Tests, Eliminates Gas and Sewer Rats—Roof Vents Freeze From Vapor, Causing Syphoning of Traps—Illuminating Gas in Sewers

IN discussing both sides of the question in regard to the main trap and fresh air inlet, the following paper as read at a debate in a recent general session of the Ontario Society Domestic Sanitary and Heating Engineers, is of interest. The author of the paper is Mr. John Wright, chairman of the Sanitation and Legislation Committee of the Ontario Society, and the views expressed therein have been framed as result of Mr. Wright's long experience in sanitary engineering.

Mr. Wright's Paper

"I take this opportunity to add a few thoughts to the discussion in favor of the main trap and fresh air inlet. This has to do with the present theory of ventilation called the "Up-Draft System."

"The proper ventilation of house drainage systems is recognized by some sanitary authorities as one of the most essential features in up-to-date plumbing, and no one can scientifically show why the ventilating section of a drainage system should be omitted.

"There are two prime reasons why house drains should be ventilated. The first is to allow gases generated within the system by the decomposition of organic matter, to freely flow to the atmosphere and be replaced by fresh air, which in turn becomes vitiated.

"The second reason is that the pressure within the system at any point should at all times be neither greater nor less than that of the atmosphere.

"The effect of sewer gas upon lead waste pipes is to corrode them freely, being very disastrous. Lead pipes are rapidly corroded by the continued action of sewer gas; the corrosion takes place usually in the form of small holes or "fittings," the metal being converted into a whitish or grey powder.

"It will be seen that the reason first mentioned for ventilating the drains is really to protect the pipes from rapid corrosion and thus prolong their term of usefulness. The second reason will become more evident on further consideration of the subject of trap syphonage.

Why We Should Use the Intercepting Trap

1st. Because it reduces the cost of plumbing for the reason that valuable time is saved on both water and smoke testing jobs.

2nd. Also that in cases too numerous to mention it has been found that where no intercepting trap was on main drain, clean-out plugs had been removed for the washing of cellar floors and plugs had never been put back in place, and in many cases they had been lost and houses were infested with both sewer gas and rats that had come from the main sewer on the street.

3rd. Where you have a plumbing system properly water and smoke tested and where the climate is as severe as we often have it in Canada, I find the vents on roofs freeze from the vapor carried in the air from the main sewer, with the result that when a closet, bath, basin, sink, etc., are used, the discharge water will form a vacuum in the pipes and cause a trap or two to syphon, allowing the sewer gas to contaminate the air of the house, and I have found it unbearable to remain in a bathroom where these conditions existed and in many cases where they were next to or in sleeping apartments.

LET INTERCEPTING TRAP BE FIRST OBSTRUCTION TO DISEASE GERMS

"We often hear the cry of sewer gas being blown out of fresh air inlets into people's faces, by opponents of the intercepting trap, and these same opponents will in many cases lead you to believe that sewer air is not dangerous and that disease germs are not carried for any distance through a sewer but will stop at the first obstruction.

"If such is the case," states Mr. Wright, "let the first obstruction be the intercepting trap. My idea of modern sanitation is to keep the air of the house as pure as possible and that the first thing expected of plumbing system is that it shall not leak sewerage or sewer gas to the house or near it."

4th. Another important reason why the intercepting trap should be insisted on is the carelessness of some owners, tenants and some who call themselves plumbers, who dig holes in such position in soil and waste pipes for clearing same when choked—that when the water is allowed to run through pipes after they are cleared that they do not leak water but allow the sewer gas to enter the house, as they are seldom closed up properly.

"In looking through numerous plumbing by-laws it will be found that sewer vent pipes are allowed on a level from ten to twenty feet from windows, doors and other openings into the building they go through or adjoining buildings, and often when smoke testing I have seen the smoke carried from the top of vent stack clearly thirty feet and in winter you can see the sewer air and vapor from same carried as far. You can easily see how sewer gas from main sewer can be carried into a building within from twenty to thirty feet where there is no intercepting trap on main drain.

"Again, I have often seen when syphon closets were used as slop sinks that they syphoned themselves almost when a pail of water was thrown into them, also that inspecting plumbing I find that the after flush pipe in low down tanks is stopped up or from other causes will not refill the closet trap when same has been flushed; often leaving only a seal of a ¼ inch of water in the trap, and in those cases if vent on roof is partly or fully frozen up the back pressure will easily force sewer gas through trap of closet, etc., when there is no intercepting trap on main drain.

Gas is Dangerous

"I have gone into occupied houses where plumbers have been working for days and find the openings on sewer open to the atmosphere of houses and occupants forced to breathe such contaminated air while sleeping as well as in daytime. Some will tell you that disease, germs, etc., are not carried into houses by sewer gas and that it is not very dangerous to breathe. I can recall some cases where both plumbers and drain men have been overcome by breathing the air from sewers, and in these cases there were no factories, mills, etc., discharging into the main sewer in the vicinity that they were working in. Again I have often been called to inspect plumbing on account of the bad smell in the house and found that illuminating gas from gas main on the street had entered the main and house street sewer through defective joints on same and then entered the house through defective plumbing. In those cases I am of the opinion that intercepting traps placed on main drain would have been a blessing and would have possibly been the means of preventing much sickness and misery to those compelled to live under such conditions for the reason that no matter how good the plumbing system is done to-day or at any time, it will not always stay perfect. Another reason why we should recommend the intercepting trap is that at any time a plumbing system can be tested where a trap is on the main drain at very small expense compared to the cost of testing

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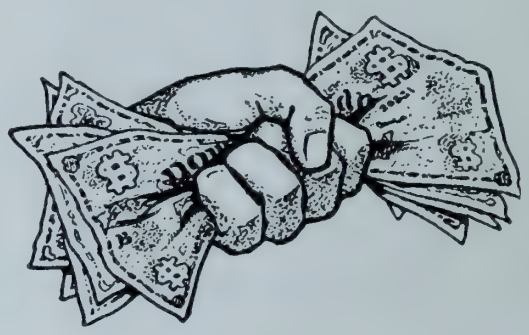
Suggest Excise Tax on Protected Manufacturers to Raise Revenue

Will It be Income, Profits, Turnover or Excise Tax?—Finance Minister Faces Deficit of $160,000,000 This Year Unless Revenue is Increased—Suggest Excise Tax of 10 Per Cent. on Manufactures Protected by the Tariff

THREE forms of taxation are now before Minister of Finance Sir Henry Drayton for the raising of that part of the country's revenue which cannot be obtained from customs duties and income taxation. The Excess Profits Tax, against which there has been much protest, might be continued. A Turnover Tax similar in application to that outlined in the last two issues of SANITARY ENGINEER might be substituted, or thirdly the Finance Minister might levy an Excise Tax on all domestic products which benefit by the handicaps placed upon the importation of similar goods from foreign countries, by the protective tariff. Government members who are against high protective tariffs are naturally favoring the latter form of taxation, because manufacturers who are receiving the maximum protection will be called upon to pay the bulk of the revenue raised in this manner.



Opinions from various parts of the country indicate that a Turnover Tax will be paid by the consumer in every case in the form of increased prices, whereas the tax on excess profits is paid by firms who have profited above a set standard and the payment of such a tax would not directly affect the consumer, providing such firms are content with reasonable profits.

Excise Tax Would Not Facilitate Importations

The suggested tax on products benefiting under the tariff works out in a still different manner. This tax would not facilitate the importation of foreign goods, but would repay the Government for its protection of industry. While still protecting the Canadian manufacturer, it has been suggested that the Government might take as much as 10 per cent. of the profits accrued by the manufacturer enjoying the protection, and for which he has not paid anything in the past.

Making a brief survey of the situation, a Western daily in a recent editorial says: "How can the manufacturer be accorded the protection he desires without at the same time giving him the lever of the tariff to boost prices and indulge in profiteering."

The editorial goes on to suggest that certain Government members would figure on leaving the tariff as it is with the possible reduction of duties on certain raw materials, and then clapping on a domestic tax on home manufacturers equal or nearly equal to the amount of the tariff on such goods when imported. Thus, although protected by the tariff from foreign competition, the manufacturer would not be able to collect the amount of that tariff in profits, but would be compelled to pay it to the Government in excise. While not liking the prospect, it is suggested that the manufacturers would prefer it to tariff reduction and stiff foreign competition.

How Will Farmer be Affected?

Surveying the three forms of taxation there are one or two significant points. One of these is as to how the farmer is going to be affected, for it is felt that he has not borne his share of taxation. In this connection it is interesting to note the recent statement by T. B. Patton in the House of Commons to the effect that income tax collected from Canadian farmers amounted to $389,011 in four years, while for the same period the total amount collected from all other sources reached $83,768,110.

Face Deficit of $160,000,000

Details of what the Government has in mind in regard to taxation will not be known until the budget is presented during the first or second week in May. The Minister of Finance is faced with a difficult situation. Ordinary expenditures for the coming fiscal year are estimated at $440,000,000, which with other expenditures, brings the total up to $540,000,000. This is without taking into account probable supplementary estimates. The total revenues for the past fiscal year amounted to $380,000,-

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Upholds Use of Concrete Sewer Pipes

Concrete Pipes in Excellent Condition After Twenty Years' Use, Says H. P. Heywood, Addressing Canadian Institute of Engineers —Standardizing Specifications and Methods of Manufacture

THAT engineers have within the past few years developed a higher appreciation of the value of concrete as a material for sewer pipe, and have put forth every effort for the standardization of specifications and methods of manufacture, was the statement of H. P. Heywood in a recent addres to the Toronto Branch of the Canadian Institute of Engineers.

"Instances are known where concrete sewer pipe have been in use for over twenty years, and wherever occasion has arisen to take up the pipes they have been found to be in excellent condition."

Contrasting steel and cast iron pipes with concrete, the speaker said that the former were subject to attack by corrosion. the metal becoming covered with nodules of iron rust, silt and other impurities, which often completely choked up the pipe through time. This did not happen with concrete pipes. In concrete pipe work, he said, the co-efficient of fric was equal, and very often superior, to that generally used for vitrified clay pipes; besides, concrete was less fragile and brittle. He also claimed that concrete pipe is smoother and cheaper than double-ringed brick sewer.

THE McCRACKEN PIPE

A type of concrete sewer pipe referred to by the speaker was one called the McCracken pipe, the outer edges of which are corrugated, giving an extra crushing strength. This class of pipe has been used in the Toronto Harbor Commission work and in various cities throughout Canada. The requirements of the American Society for testing materials were said to have been more than complied with, according to recent tests made of these cement pipes. Mr. Heywood was of opinion that the inspection of concrete sewer pipes was a long stride towards overcoming the prejudice that engineers had against the use of concrete products in general.

The speaker said that practically all cities have adopted the use of concrete in the construction of the larger diameter sewers.

Lock Joint Pipes.

Dealing with different types of pipes, Mr. Heywood referred to the lock joint pipe, which was originally designed in four-foot lengths. It was found that the work proceeded more rapidly, and that the excavation cost was considerably reduced as the pipe could be laid right up to the excavation, which meant that a large proportion of the lower and more expensively handled dirt could be thrown back on the pipe without damaging its joints. "Engineering contingencies" were also consideradly reduced. The pipes are modeled vertically in well oiled steel forms, spigot end up; the reinforcement protrudes about two inches from each end of the pipe, and when the pipes are laid in position this reinforcement overlaps in a recess formed in the interior of the joint, which is V-shaped, and formed by the spigot and bell ends of the pipe, after which a sealing form is placed inside the pipe over this recess and 1 x 1 grout is poured through a hole broken in the crown of the bell. The steel and the grout form the lock.

The lecturer then proceeded to discuss two kinds of pressure pipe, the larger of which, ordinarily eight inches long, a copper expansion joint, with a bead rolled into it, is used. Here the triangular mesh reinforcement projects from the bell, and only half the width of the strip being previously molded into the pipe, with the result that the mesh and copper opens or closes without causing an opening in the joint. This class of pipe, said the speaker, when a test was made in 10 miles of 66-inch diameter pipe, the head varying from 45 feet to 95 feet, and on a leakage allowance of 118,000 g.p.d., it did not exceed 43,000 g.p.d.

Rigid and Non-rigid.

The speaker also said good results were obtained from a type of subaqueous pipe, rigid and non-rigid, a modified type of the rigid pipe being very suitable for high class caisson work, and male a C. I. cutting edge at the bottom of the caisson. Sections 20 feet long and joined together with C. I. flanges bolted on the inside of the caisson are used. Leakage tests for this class of pipe, made in 1913, gave an actual leakage of 13,000 g.p.d., against an allowable leakage of 36,000 g.p.d.

The speaker next gave some particulars of the Bonna system of R. C. pipes. which, he said, particularly withstood higher pressures and was very popular in England. Its chief feature, he said, consisted of a mile steel tube 1 mm. thick, but built up from sheets of steel, which were rolled to the required diameter in lengths from 9 to 12 feet. The longitudinal joint is butt-welded by oxy-acetylene or electric processes. After various processes the pipe is moulded vertically, using steel fromes. The joints in this pipe require jointing holes in the trench.

TO INVESTIGATE VENTILATION OF BRANTFORD PUBLIC BUILDINGS

Brantford, Ont.—A special committee of three of the Chamber of Commerce has been appointed to consider the question of ventilation, with a view to securing the necessary legislation requiring proper ventilation of all public and semi-public buildings. This committee consists of Mr. Henry White, secretary of the local branch of the Sanitary Engineers' Association, Dr. Hutton, and one member of the Women's Patriotic League to be appointed by them.

THE SARNIA INTAKE

Following Mr. Heywoods address F. W. Thorold, consulting engineer, showed a number of lantern slides appertaining to the building of the Sarnia intake pipe which conveys water to the city from a point two miles distant. He briefly explained the difficulties under which the work was accomplished, having to combat a tide running at five miles per hour, while the pipe had to be laid at a depth of 40 feet, with the aid of divers, and so as not to interfere with the many vessels which plied over the water area. There was also precautions to be taken to guard against dangers to be expected from ice gatherings. The work, now completed, had given every satisfaction.

NEW SCHOOLS AND HOTEL FOR LONDON

LONDON, Ont.—Tenders for the erection of a branch Collegiate and Public School entensions totalling about $450,000 will be called for by the Board of Education before the end of the month. Announcement is made that plans are now being matured and that it is proposed to have the building ready for service before the commencement of the next scholasitc year in September. The Chamber of Commerce also announces that $100,000 has been subscribed locally toward the hotel scheme and that construction of a bulding eight to ten stories in height, and having 500 rooms will be commenced before midsummer. Locations being considered are in the vicinity of Dundas and Wellington streets and on Richmond street near Victoria Park.

TO INFORCE PROPER HEATING.

A Bill introduced in the Ontario Legislature would compel owners of apartment houses to keep the temperature of flats up to 68 degrees, on the contention that when people signed leases they expected proper heating.

Follow the lead

The introduction of Hydro Pow

Signal for the Plumb

THE march of progress in the rural districts of Ontario is seen most along the line of "Hydro" service.

Everyday news of Hydro progress appears in the daily papers until to-day a large portion of rural Ontario enjoys the same service as the towns and cities.

With the introduction of Hydro power come the possibilities of such home comforts as electric labor-saving devices, electric lighting, a continual supply of water and not the least, plumbing and sanitary comforts.

PORT HOPE ENAMEL

The plumber who recognizes the exceptional possibilities of developing the rural plumbing trade will reap a harvest of benefits for himself, and at the same time give a service to his community which cannot be estimated in dollars and cents. He will make rural life more attractive to the younger generation—a real necessity to Canada's existence.

Port Hope Sanitar

Factory :
PORT HOPE, ONTARIO

Toronto Show Rooms :
119 KING ST. EAST

Winnipeg Office :
405 TRIBUNE BLDG

of the "Hydro"

a District is the Starting
secure Rural Trade

EVEN if "Hydro" service is not available in your district there are new possibilities opening up in all parts of Canada in the form of small power plants, water systems, etc., which you should not overlook.

The first essential is power, for with power, whether developed with wind, gasoline or electricity, running water is made possible, and running water precedes sanitary equipment.

ANITARY
WARE

Why not encourage the sale of power plants in your vicinity and follow with home equipment such as complete plumbing and sanitary outfits?

Port Hope Sanitary Enamel Plumbing Ware is made in every style and quality to meet the needs of all classes of trade, from the finest mansion to the smallest and most unpretentious cottage.

Have you our "For the Home" Catalog and Roughing-in Booklet?

Mfg. Company, Limited

Halifax Office :
McCURDY BUILDING, HOLLIS ST.

Head Office :
ROYAL BANK BLDG., TORONTO

Montreal Showrooms :
234 BEAVER HALL HILL

Tax Returns Make No Provision for Stock Depreciation

Tax Officials Say There is No Loss Until Transaction is Made—Otherwise a Capital Charge

AN enquiry has been received by SANITARY ENGINEER from a large Western wholesale and retail hardware company, asking whether any allowance is made for depreciation on stock, in connection with income tax statements. The firm making the enquiry writes that if no depreciation is allowed they consider it most unfair, as there are in all stocks goods which are unsaleable. The instance was cited of old sliding parlor door locks, which today in many districts cannot be sold at all. In this case these were taken in stock and a fair depreciation made, which however was disallowed.

Officials of the Taxation Office advise SANITARY ENGINEER that no allowance for depreciation is made because there is really no depreciation until a sale is made. In the event of a transaction taking place the loss then figures in the usual profit and loss account. If it is impossible to sell the articles in question there is no selling transaction on the part of the retailer and the charge then becomes one against capital. The merchant is taxed only on profits of goods sold and profits actually made in trading. Income tax officials say that experience shows that inventory reserves for declines in prices or values are arbitrary and suppository. It is contended that the more reserves are built in this way a greater amount of taxation will fall on the merchants later on in subsequent periods and returns; in other words, the department, it says, is really protecting the taxpayer in refusing to allow an inventory reserve.

SUGGEST EXCISE TAX

(Continued from page 22)

000. On the same basis of revenue, therefore, the Minister is faced with a deficit of $60,000,000 on ordinary expenditures and a total deficit of $160,000,000. The floating of another loan is said to be out of the question, and it is therefore evident that new sources of taxation must be found. Meanwhile, there is much speculation as to the probable new sources of revenue. Rumors are everywhere to be found that the Excess Profits Tax is to be dropped and the Income Tax, though we understand there is to be some tightening up, has so far proved unwieldy and not as productive as was expected.

Speculation is being indulged in as to the merits of the three forms of taxation outlined for raising the additional revenue required, and a full discussion is encouraged. SANITARY ENGINEER has been giving much prominence to opinions on the subject and will welcome the views of the trade from all parts of Canada.

WHY HE COULDN'T PAY HIS BILL

The following letter, which a certain customer wrote upon receipt of a request to send a cheque to cover his bill, was read at the annual convention of the Ontario Society Domestic Sanitary and Heating Engineers by G. Grinyer in connection with his brief address on the subject of collections:

"For the following reasons, I am unable to send you the cheque asked for:

"I have been held up, held down, sandbagged, walked on, sat on, flattened out and squeezed, first by the Government for Federal War Tax, Excess Profits Tax, Victory Loan Bonds, Thrift Stamps, Capital Stock Tax, Merchants' License and Auto Tax, and by every society and organization that the inventive mind of men can invent to extract what I may, or may not, possess.

"I have been solicited by the Society of John the Baptist, the G.A.R., the Woman's Relief, the Navy League, the Red Cross, the Double Cross, the Children's Home, the Dorcas Society, the Y.M.C.A., the Y.W.C.A., the Boy Scouts, the Jewish Relief, and every hospital in town; then, on top of it all, came the Associated Charities and Salvation Army.

"The Government has so governed my business that I don't know who owns it. I am inspected, suspected, examined and re-examined, informed, required and commanded, so I don't know who I am, where I am, or why I am here. All I know is I am supposed to be an inexhaustible supply of money for every known need, desire, or hope of the human race, and because I will not sell all I have and go out and beg, borrow, or steal money to give away, I have been cussed, discussed, boycotted, talked to, talked about, lied about, held up, hung up, robbed, and nearly ruined, and the only reason I am clinging to life is to see what in h—— is coming next."

Building in Montreal Uncertain

Although Montreal is entitled to a loan of $3,000,000 from the Government, by way of assisting in the workman's home plan, no acceptance of the amount has yet been announced. The matter will be decided, very probably, within a short time.

One of the difficulties in the way of early action is that of the slowness with which such matters usually move. After consideration of the by-law, once is it approved by the Administrative Commission, the matter must be given the attenton of the Aldermanic Board. At this time, there is an added delay, usually of one month at least, this to conform with the city by-laws. Following this, an application to the Provincial Government would entail another delay, probably for several weeks, and it would very likely be midsummer before arrangements were completed.

It is possible that, in view of the difficulties that are presenting themselves, there may be no borrowing of money this year. One of the main reasons for this lies in the extremely high prices that obtain for all materials entering into building construction.

Another delay has been occasioned owing to the fact that the personnel of the Housing Commission has not been completed. Several members have been selected, but with no salary attached to the position, suitable material for completing the board has not been easy to find. It has been stated that even the most modest of dwellings, if erected under this plan, would cost in the neighborhood of $5,000—a price greater than that usually considered as "carryable" by many workmen.

CRANE COMPANY IS EXPANDING

Crane Limited are extending their operations throughout Canada with the erection of several warehouses and the establishment of branches at various points. SANITARY ENGINEER is informed that among the important developments which are about to be carried out are the erection at Calgary and Halifax of warehouses and the establishing of branches at Regina and Ottawa. The new buildings will be of mill construction and with warehouses established at these various points it will give Crane Limited a chain of branch warehouses from coast to coast. A sales office is being opened at Quebec.

NEW BUILDINGS AUTHORIZED.

Ottawa, Ont.—A Bill is being drafted covering the erection of a $500,000 laboratory for scientific research.

MORE ACTIVITY IN BUILDING

Continued from page 20

crease of $223,050 over March, 1919. For the most part, however, the Western cities are feeling the pinch of the market for materials and are curtailing construction accordingly. The result is apparent in the returns.

Hints on Seasonable Advertising

The reproduction of some sample advertisements herewith will give some idea of the lines being advertised by others in the trade in all parts of Canada, and will impart some ideas or suggestions which others may incorporate in their local advertising.

"SKILLFUL PLUMBING WORK" is the bold heading on the advertisement by D. N. Flander, Ingersoll, Ont. "The installation of all kinds of piping is our particular specialty. We are completely equipped with most modern appliances and expert plumbers and are capable of executing the most difficult kind of work. Consult with us about your job or submit your plans." This is the data which appears alongside a catchy illustration as shown.

* * *

W. H. Dunstan makes a seasonable appeal. The spring and early summer season is when changes in house fittings are under consideration and his ad. is, therefore, timely. "Are You Making a Change?" is the heading which makes a personal matter of the appeal. It continues: "If you are considering changing or remodelling your bath room, installing modern fixtures; a new sink in the kitchen; laundry tubs in the cellar; you will find our prices most attractive."

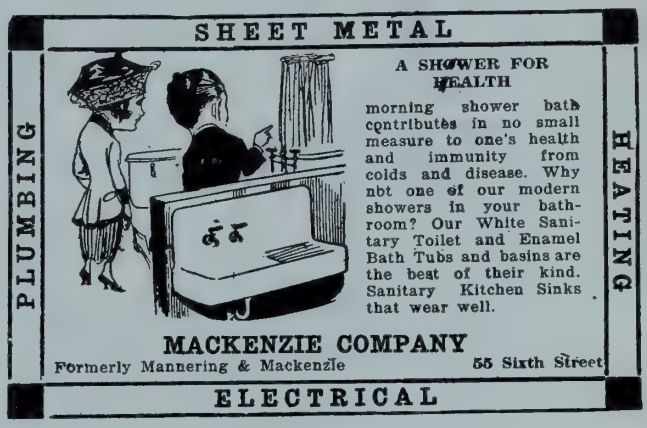
* * *

The ad. by Mackenzie Company, New Westminster, B.C., makes the best use of available space by utilizing illustrations, a heavy border and by devoting the data in the ad. to one particular article. In this case it is a shower bath, and the ad reads:

Skillful Plumbing Work
and the installation of all kinds of piping is our particular specialty. We are completely equipped with most modern appliances and expert plumbers and are capable of executing the most difficult kind of work. Consult with us about your job or submit your plans.
D. N. FLANDER
Ing. Phone 12
INGERSOLL
We will Accept Bonds in Payment of Purchases at this Store

"A Shower For Health." "A morning shower bath contributes in no small measure to one's health and immunity from colds and disease. Why not have one of our modern showers in your bathroom?" This advertisement gives information and appeals to a person's natural desire for cleanliness and health.

"Do not experiment with YOUR HEATING AND PLUMBING PROBLEMS" is the heading of an advertisement by McGrattan's, Assiniboia, Sask. "Have your work done by practical men. It pays. Come in and inspect our furnaces, hot water and steam boilers. Also let us talk over your PLUMBING requirements. All work done in a practical manner by practical men."


SHEET METAL
PLUMBING
HEATING
A SHOWER FOR HEALTH
morning shower bath contributes in no small measure to one's health and immunity from colds and disease. Why not one of our modern showers in your bathroom? Our White Sanitary Toilet and Enamel Bath Tubs and basins are the best of their kind. Sanitary Kitchen Sinks that wear well.
MACKENZIE COMPANY
Formerly Mannering & Mackenzie
55 Sixth Street
ELECTRICAL

This advertisement makes a point of the fact that there are plumbers and plumbers. There are those that know their business, and there are others who are merely experimenters. Having some definite point such as this and giving the information to the prospective customer is the surest way to bring results from local newspaper advertising.

* * *

"A Good Plumbing and Heating Job is the Cheapest," is the heading in bold type on the ad. by Vagg, Wilson & Company, Regina, Sask. "A poor one is expensive no matter how small the first cost may be. When we do your work you are assured of the best job it is possible to get, and our prices are right, too. We can handle your work whether you live in the city or the country."

The definite point involved in this ad. is the fact that without respect to how small the initial cost is the job will be cheap or expensive according as to how it stands up under use. Appealing for both city and country work where the facilities are available for handling both, should always be made.

* * *

"TAKE A TIP FROM TORCHY. GOOD PLUMBING IS A NECESSITY, NOT A LUXURY," is the subject of an illustration in an ad. by E. Cardwell. "You can see old Ill-health coming if you haven't proper plumbing. The science of sanitation is the art of prevention. The proper

plumbing in a home is of more prime importance than anything else that serves a family's daily needs. Plumbing should be inspected from time to time as it gets out of order, the same as any machinery. Perfect plumbing is a health measure."

This paragraph is well worded and is the kind of educational matter which it is necessary to impress. The prevention of disease by the careful guarding of plumbing work is more effective than all the doctoring in the world, once the damage has been done.

We Point With Pride

to the many handsome sanitary bathrooms we have equipped. And the owners of them are just as proud as we are. Not one of them but is glad he made the change from the old unsanitary, unattractive kind to the modern kind. Want us to figure on one for you?

W. F. MARTIN
Plumber and Steamfitter

* * *

A little divergence is made in the ad. by J. McKinnon, Kamloops, by advertising for repair work on tinware. The ad. contains a clean-cut illustration of workmen engaged in repairing tinware, and the data reads as follows: "We repair tinware as well as make all kinds of tin and sheet metal work. If your boiler needs a new copper bottom, your scale scoop needs renewing, your stove pipes want replacing, come right here where you can have exactly what you want done in the least time for the least money which good work and good materials will permit."

This paragraph makes an appeal for business of certain kinds. It gets away from the generalizing which spoils the effect of so many advertisements.

* * *

The W. F. Martin, Gananoque, Ont., ad. makes good use of a small space, single column, by the use of a catchy illustration pointing to the installation of a complete bathroom outfit. "We point with pride to the many handsome sanitary bathrooms we have equipped. And the owners of them are just as proud as we are. Not one of them but is glad he made the change from the old, unsanitary, unattractive kind to the modern kind. Want us to figure on one for you?"

This ad., instead of appealing direct for business, tells of the experiences of others who have installed up-to-date equipment. Naturally, everyone who is in the class appealed to are desirous of enjoying the same pleasures as those mentioned, and very often a veiled appeal couched in such language as is used is very effective.

We Repair Tinware

as well as make all kinds of tin and sheet metal work. If your boiler needs a new copper bottom, your scale scoop needs renewing, your stove pipes want replacing come right here where you can have exactly what you want done in the least time for the least money good work and good materials will permit.

J. McKINNON
Heating and Plumbing.
P. O. Box 185 Phone 36 121 Victoria St

"Plumbing That Stands Up" is the effective heading of an ad. by Barr & Anderson, Ltd., Vancouver, B.C. "The plumbing job that 'stands up' under the severest tests is the only safe plumbing for any home. To experiment with so-called low tenders is to invite trouble. Our work has stood out pre-eminently for over 20 years. We will not do an inferior job."

This ad. again directs an appeal to do away with the experimenter who puts in the low bid on a tender because he is often not fully acquainted with the costs of his own business, and later finds he has to skimp the job.

PLUMBER BADGES FOR BOY SCOUTS

St. John, N. B.—An important announcement by District Headquarters of the Boy Scouts has to do with the Plumber Badge issued to Scouts with the following qualifications:

(1). Be able to use a soldering iron to repair a copper ball or similar job; to repair leaky taps and stopcocks and ball cocks.

(2). Know how to hammer up a burst pipe, and know the address of his local turnkey.

(3). Understand the ordinary hot and cold water system of a house; how to thaw out a frozen pipe and to protect pipes from frost.

(4). Understand the use of stock and dies and be able to cut a thread upon 1-Inch pipe.

NEW SCHOOLS FOR BELLEVILLE

Belleville.—The City Council has passed a requisition of the Board of Education for $100,000 for the erection of a new eleven-roomed public school, and for $250,000 for a combined Collegiate Institute and Technical High School. Work on the public school starts this summer, and on the Collegiate possibly in 1921.

DEATH OF BRANTFORD CITY ENGINEER.

Major I. H. Jones, who for 37 years, has been chief of the Engineering Department of the city of Brantford, Ont., is dead. He held front rank in his profession, being frequently called upon by municipalities in convention and by engineering bodies to give papers on technical metters.

Sell the "Idea" of Electrical Appliances, Not the Article

Selling Appliances in Groups Has Proved Successful Method—Ten Commandments for Selling Electrical Goods—Tags on Each Article Should Show Cost in Cents Per Hour to Operate—Display Best Grade First—Do Not Talk "Over the Customer's Head" About Voltage, Amperes, etc.

THE need for selling the idea (the service performed by the appliance) instead of the appliance itself, is emphasized in the following article from the "American Artisan and Hardware Record":

"When you undertake to sell an electric iron to a prospective customer, what is your first step? Do you proceed to describe the many benefits made possible by the use of the electric iron? Or do you begin by telling her how it is made—materials, construction, workmanship, and so forth. If you do that latter you are not selling the idea. You are instead supplying the data which the customer may perhaps require later in order to decide which one of several makes of irons to select. But there is a step that must be taken prior to that. The customer must first be led to want the iron for the service its use affords; a description of its materials, construction and workmanship will not arouse that desire. What the customer wants to be told is wherein and how the use of the electric iron affords service not possible with the old sad-iron. To describe these things is to sell the idea.

"Here are the reasons why the housewife purchases an electric iron:

(1) The facilities for doing the ironing without having to light the kitchen or laundry stove.

(2) Escape from the necessity from having to carry heavy sad-irons from the stove to the ironing board and back again.

(3) The ability to do the ironing where it is coolest and most pleasant—wherever facilities for using electric current are available.

(4) The advantages made possible by the use of the electric iron while travelling.

(5) The saving of time through not having to change irons.

(6) The advantages of working with an iron that maintains a constant heat.

Service is Important Factor

"To explain these things is to sell the idea. It is because of the desire for the comforts which those ideas express that the customer wants and buys the iron. Of every electric appliance there are things to be said that will sell the customer on the idea of its service. And when the customer has been sold on the idea of service made possible by this or that appliance, there is then no necessity for selling the appliance itself—the customer gladly and willingly buys it. Analyze your own experiences, Mr. Hardware Merchant, and you will see that that is true. Nobody need urge you to buy the things whose service you already crave and desire. You are concerned merely with selecting the best particular make of that thing for your purpose; and there is where a reference to construction, workmanship, design, operation, etc. fits in properly. It is wise and necessary to refer to those things at that point. But never do so until you have sold the idea and aroused the prospect's desire to buy.

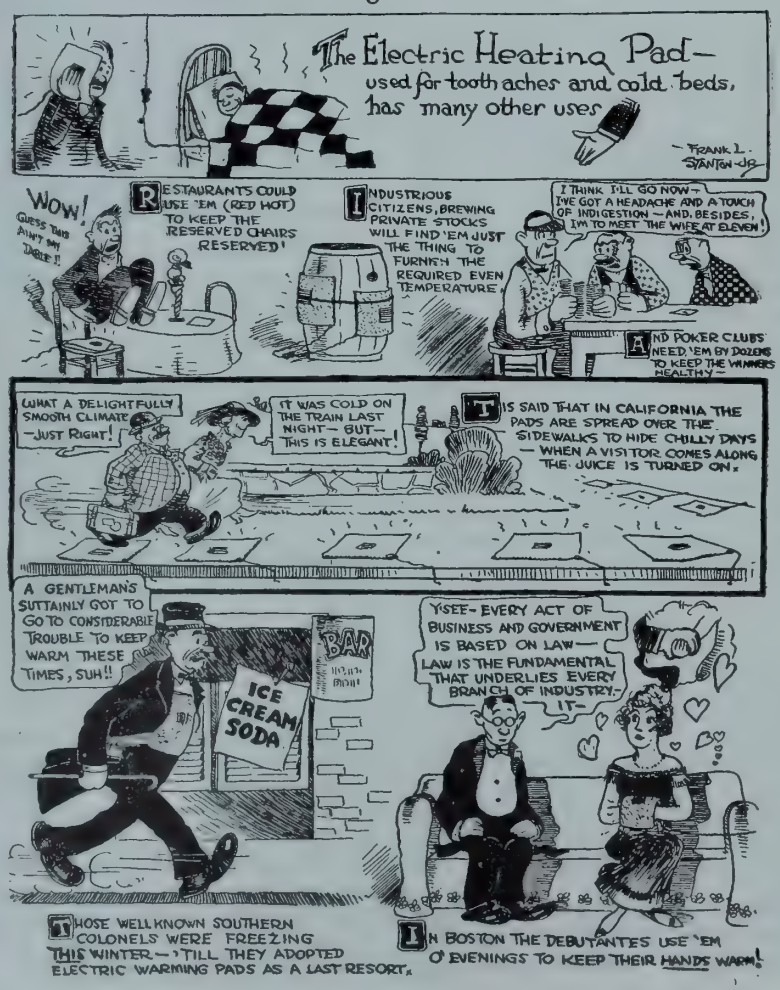
The Ten Commandments of Electric Appliance Selling

"For the benefit of its merchandising members, The Society for Electrical Development some time ago reduced the 'how-to's' of appliance selling to a series of rules or commandments. The hardware merchant who sells electrical appliances needs identically that same sort of help, and a summary of those rules is given here:

"Rule 1.—Know Your Appliances—what they will do and how they will do it. When explaining the Electric Grill, don't stop with saying 'This compartment is for broiling, this section is for frying and that one for stewing.' That's too indefinite. It does not properly lead the customer to think of the services of the appliance. It's the need for the services of the appliance that has aroused the prospect's desire to possess it, rather than any interest in its constructional features.

"When discussing the broiling section of the grill, for illustration, state in definite terms that it will broil steaks,

The Electric Heating Pad Has Endless Uses


The Electric Heating Pad—
used for tooth aches and cold beds,
has many other uses
— FRANK L. STANTON-JR
WOW! GUESS THIS AIN'T MY TABLE!!
RESTAURANTS COULD USE 'EM (RED HOT) TO KEEP THE RESERVED CHAIRS RESERVED!
INDUSTRIOUS CITIZENS, BREWING PRIVATE STOCKS WILL FIND 'EM JUST THE THING TO FURNISH THE REQUIRED EVEN TEMPERATURE!
I THINK I'LL GO NOW— I'VE GOT A HEADACHE AND A TOUCH OF INDIGESTION—AND, BESIDES, I'M TO MEET THE WIFE AT ELEVEN!
AND POKER CLUBS NEED 'EM BY DOZENS TO KEEP THE WINNERS HEALTHY—
WHAT A DELIGHTFULLY SMOOTH CLIMATE —JUST RIGHT!
IT WAS COLD ON THE TRAIN LAST NIGHT— BUT— THIS IS ELEGANT!
IT IS SAID THAT IN CALIFORNIA THE PADS ARE SPREAD OVER THE SIDEWALKS TO HIDE CHILLY DAYS — WHEN A VISITOR COMES ALONG THE JUICE IS TURNED ON.
A GENTLEMAN'S SUTTAINLY GOT TO GO TO CONSIDERABLE TROUBLE TO KEEP WARM THESE TIMES, SUH!!
BAR
ICE CREAM SODA
Y'SEE— EVERY ACT OF BUSINESS AND GOVERNMENT IS BASED ON LAW— LAW IS THE FUNDAMENTAL THAT UNDERLIES EVERY BRANCH OF INDUSTRY.— IT—
THOSE WELL KNOWN SOUTHERN COLONELS WERE FREEZING THIS WINTER— 'TILL THEY ADOPTED ELECTRIC WARMING PADS AS A LAST RESORT.
IN BOSTON THE DEBUTANTES USE 'EM O' EVENINGS TO KEEP THEIR HANDS WARM!

chops, ham, fish, oysters, pressed meats, and, if desired, vegetables such as eggplant and parsnips. That is to say, the way to bring the prospect to think of and desire the services of the appliances is to explain in detail the scope and advantages of these services. Failing to do that, you can not hope to effect a sale.

"Be able also, to give, and make a point of giving reasonably accurate figures as to the cost in cents per hour for each and every service and operation performed by the appliance you are selling. Put stress also upon the saving in time made possible by "doing it electrically." Above all else, be able to demonstrate, not merely tell, just how the appliance should be operated to insure the best results. There's a heap of difference between just merely stating what particular function an appliance performs, and explaining and demonstrating how and how well it performs that function.

"Rule 2.—Know Your Customer. Old hands at the selling business classify all prospective customers as either 'lookers' or 'listeners.' By the first term they mean those who trust entirely to their own judgment and buy only those things which pass their close and critical scrutiny. They are the ones who must be shown, who demand that every little phase and feature of the thing to be bought be submitted to examination of hand and eye. They place little or no confidence in the words of the salesman —they insist upon being shown.

"The second class much prefer to be guided by the suggestions and statements of the salesman and they will do so always, provided he can inspire them with confidence. They will listen attentively to what is told them, and they will get the general sense of it all. But their first concern is to decide if they may safely trust to the judgment and sincerity of the salesman. They don't particularly desire to be shown—they want to be told, as it is only by getting the salesman to talk and analyzing his statements that they can decide whether he knows his business and is to be trusted. Once they have decided that point in his favor, they then will revert to this, that or the other feature of the appliance as explained by the salesman up to that time and desire further enlightenment or instruction regarding points they appeared to understand in the first instance but did not, because at that time they were more concerned in judging the salesman than in deciding the merits of the appliance.

"Your own intelligent study of your customers will be your guide in classifying them properly. The listeners desire to be told and the lookers must be shown. If you are not conducting your selling talk in harmony with their preferences you will, if you are actually alive to your opportunities, recognize your mistake very quickly and can then change over.

"Rule 3.—Aim to Discover and Cater to the Prime Desire That Prompts the Customer to Buy an Appliance.

"The need behind the need, so to speak, is the one that should be catered to in effecting a sale.

"Man has certain basic instincts. They constitute the source of all desire. All actions, efforts and thinking are to the end of satisfying or appeasing desires occasioned by the persistence or momentary urge of one or the other of those basic instincts.

ADVERTISE, DISPLAY AND SELL ELECTRICAL APPLIANCES IN GROUPS

"What is meant by selling appliances in groups is this: The toaster, percolator and grill make the housewife completely independent of the kitchen range at breakfast time. The use of but two of these appliances leaves still the necessity of going to the kitchen range for the service that otherwise would be performed by the third appliance. For instance, Mrs. Housewife has on her table a toaster and grill, and so far as making toast, broiling chops, frying bacon, preparing hot cakes and whatnot else, she is completely independent of the kitchen range. She can sit right at table and enjoy the conversation with Friend Husband and family. The foodstuffs are prepared right at table but no breakfast is complete without coffee, and lacking a percolator, the service of the other appliances is discounted. The kitchen range must be lighted and divers trips made from the range to the table for and with coffee.

"When Mrs. Housewife comes in and asks for a toaster, or a percolator, or a grill, she perhaps does not think of how the service of all three exalts the services of each one and makes her completely independent of the kitchen range. But it is up to you to think of those things and to explain the advantages and service made possible through the use of the three appliances, which can not be enjoyed in the same measure with but two of them. That's what is meant by selling appliances in groups.

"When you sell a six-pound iron, explain also the advantages and many benefits made possible through the use also of the lighter iron. When you sell an electric washer, picture how its service is enhanced when supplemented by that of the ironer and the iron. Thus it goes. Sell appliances in groups. It means bigger sales and greater satisfaction to the customer."

"If the prospect's desire is strong enough, and his belief in the thing offered for sale is well grounded, the matter of closing the sale simmers down to the operation of inciting the prospect to satisfy that desire by the action of buying and possessing that thing. An illustration will make that principle plain: Mrs. A., for instance, is a woman in whom the desire for comfort and ease is paramount. She abominates having to arise and prepare breakfast for her husband who departs for business at a very early hour. Her object is: 'How to provide breakfast for her husband without having to sacrifice her own love of ease.'

"An invalid friend explains how her husband prepares his own breakfast by the aid of electrical table appliances.

"Mrs. A. immediately develops a desire for electrical table appliances, and calls upon you that she may learn more about them.

"Eventually, of course, she will come to appreciate their fuel, food, time, and labor-saving qualities. But for the moment her chief interest is in how they will enable her husband to prepare his own simple breakfast of eggs, toast and coffee. The arguments regarding the appliances, that will work best in this instance, are those relating to the ease, simplicity and reliability of there use and operation.

"These are the factors that cater to her desire for ease and luxury, by enabling her to lie comfortably abed while her husband prepared his own breakfast.

"Aim to discover the controlling desire which prompts the need for the appliance. There is such a basic desire in every instance. A little study of your prospect will enable you to discover it. Then conduct your selling talk accordingly.

"Rule 4.—Keep From Talking Watts, Amperes, Voltage, and so on. Every item brought into a sales talk about appliances, which the prospect does not understand, adds just one thing more, one other doubtful point, which must be explained before the sale can be consummated.

"Such terms as watts, amperes, voltage, are not understood by the average woman; and women buy most of the appliances.

"Confine your talk to plain, everyday terms that all will understand. If you must employ technical terms make a point always of explaining them.

"Rule 5.—Don't Refer to Electrical Appliances as 'Current-Consuming' Devices. That electrical table appliances consume current is true. Nevertheless that is merely incidental to the service their use affords. They should be referred to in terms suggesting their services.

"One expects to have to feed a cow—but when one discusses cows it is in terms of milk or beef.

"That same principle holds good for electrical table appliances. They are fuel, food, time, labor and money-saving devices. Refer to them accordingly.

"Rule 6.—Always Refer to Operating Cost of Appliances in Terms of Cents per Hour. Or state the cost on a monthly or yearly basis.

"To refer to operating cost in terms of current is confusing to all but the technically-informed. Besides it's a lazy man's way of convincing the facts. Because when the operating cost is given in terms of current the prospect then is

Continued on Page 36

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

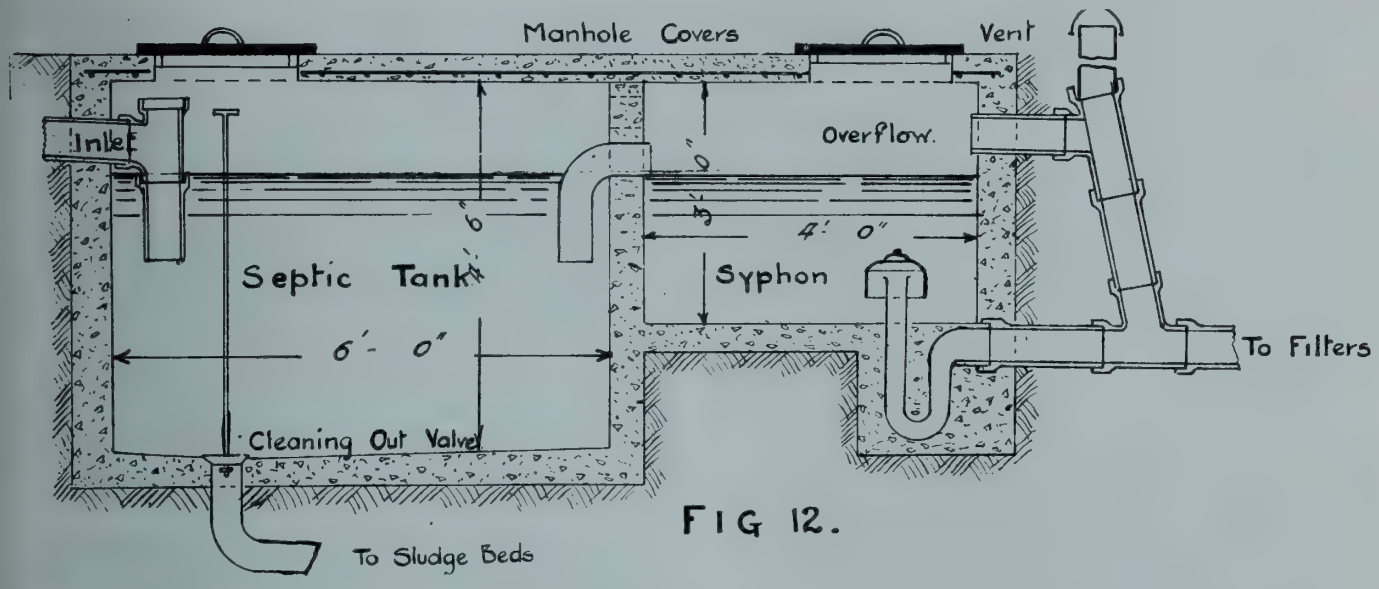


FIG 12.

Article No. 7 of the Series

(Continued from last issue)

FIG. 12 shows a good example of this form of tank designing and the illustration fully describes the method of construction.

The only additional feature is the cleaning-out valve in the liquefying chamber, which can always be installed in any septic tank installation provided the ground will permit of the sludge running by gravitation to a given, selected area for sludge, drying operations. The grade on the sludge pipes for liquid sludge should not be less than 1 in 30, otherwise they are liable to become choked, and it is always advisable to have many holes constructed on this sludge pipe line so that any stoppage can be easily removed by rodding or flushing.

ARGUMENTS FAVORING THE MAIN TRAP

Continued from page 21

plumbing systems without traps on main drains.

"I have never yet seen an intercepting trap freeeze when the fresh air inlet was properly connected to the horizontal house drain on the house side of the trap, and I have never seen an intercepting trap choked where modern plumbing fixtures were installed.

"The best system of water carriage sewerage is at all times liable to an accumulation of foul air, and it is simply preposterous to admit this volume of infected air into the house by leaving a free passage for it through the soil pipe.

"The danger from the refuse that passes daily through the soil pipe from a house into the sewer is as nothing compared with the elements of decomposition contained in the length and breadth of sewer systems. The enemy is without the gates, not within, and common sense teaches that he should be kept there."

RESULT OF HOUSING LEGISLATION

OTTAWA,.—A return tabled in the House of Commons, showed that construction of 1,600 houses had been commenced in 1919 under the Federal Housing Legislation. Of this number, 1,354 had been completed.

RECOMMEND RETURNED SOLDIER FOR SANITARY INSPECTOR

Winnipeg, Man.—W. F. Thornley, the returned soldier, who has been recommended for the position of chief sanitary and smoke inspector of the local health department, is at present deputy smoke and sanitary inspector of Winnipeg, where he has been employed many years. His recommendation is in line with the health department's policy of appointing the best qualified men that can be secured.

EDITORIAL COMMENT

"GET TOGETHER" SPIRIT WANTED IN COMING CONVENTION OF CANADIAN SOCIETY

PLANS are well under way for drawing a large and enthusiastic gathering to the twenty-third annual convention of the Canadian Society of Domestic Sanitary and Heating Engineers, which is to be held in Toronto on Tuesday, Wednesday and Thursday (June 8, 9 and 10). Many interesting subjects of great importance to sanitary and heating engineers throughout the country will be considered. A number of these have suggested themselves as result of the recent convention of the Ontario Association. The question of closer co-operation with manufacturers and labor are of great importance at the present time and undoubtedly more will be heard at the coming gathering. An exhibition of plumbing and heating products will be displayed during the convention by manufacturers and wholesalers. The officials of the Canadian society are extending a welcome to members of the craft from all parts of the Dominion, as it is realized that a representative gathering can be most influential in dealing effectively with the problems of the present day.

WHAT HAS THE FEDERAL BUDGET IN STORE?

THERE is much apprehension among those engaged in all branches of the trade as to what the Federal budget has in store. Manufacturers, wholesalers and retailers are very much incensed over the continued delay in presenting the budget statement in the House of Commons owing to the fact that while they are kept in the dark as to what the Government has in mind they are unable to proceed with their business plans. It is felt that it would have been much more in the business interests of the country to have speeded up the presentation of the statement in order that the trade could provide early for their responsibilities and get down to business with a good start. The session of the Federal Government has been dragging along and the budget left to the last minute. It is expected to be brought down during the week of May 2, according to latest reports.

The trade has even more than usual interest in the budget this year on account of the indefiniteness which has surrounded the proposals in mind for raising increased revenue over last year. The Minister of Finance admittedly has a difficult situation to face, as ordinary expenditures for the coming fiscal year are estimated at $440,000,000, which with other expenditures, brings the total to $540,000,000. When compared to the figure of $380,000,000 as the total amount of revenue collected last year, it is evident that a deficit of $160,000,000 will be faced unless more sources of revenue are found or higher taxation imposed.

To raise the additional revenue suggestions have been made for a tax on turnover, an excise tax or a modification of the present business profits tax to render it more productive. The feeling of the trade is that the obligations of the country must be met and that payment should be expedited. Everyone is therefore in an expectant mood as to what the Government has found it necessary to do to raise the revenue.

INCREASE IN BUILDING REFLECTS CONFIDENCE

MANY predictions were made from time to time during the slump in building operations as to what change was likely to take place in the near future. Despite continued high costs, it is shown by statistics that building construction during 1920 promises to be substantially greater in volume than during last year. This applies to practically all parts of Canada. February figures of permits issued in fifty-four Canadian cities for 1920 show an increase of 124.32 per cent. over the record for that month last year. Figures from each of the larger centres in Canada indicate that this percentage of increase is being made in each community. The condition is therefore a healthy one and reflects confidence in business conditions for some time ahead. Actual figures from the various parts of Canada are reproduced elsewhere in this issue.

CONTINUE POSTAL WAR TAX

OWING to large increases in the cost of postal services, any return this year to pre-war rates are said to be out of the question. The tax of one cent on all letters as imposed by the War Revenue Act of 1915 last year yielded a return of six million dollars.

The stamp tax on commercial paper, such as cheques, yielded a further ten million dollars. In the United States the postal war tax has been removed; in Canada similar action will likely be impossible because of the increased expenditure of the Post Office Department.

Further increases in expenses are threatened. The railways have notified the Post Office Department that they propose to increase the cost of carrying the mails by charging 37¾ cents a mile for cars which have cost 17 cents a mile. This will entail an additional outlay by the country of about $4,000,000 a year. Increases in the salaries of postal employees will cost the country nearly two millions more than heretofore. Rural mail carriers, having organized and become affiliated with the Dominion Trades and Labor Congress, recently sent a delegation to Ottawa to demand that their rates be standardized on a basis which will practically double them. Acceptance of this proposition would add about two million dollars to the cost of carrying mails in rural districts. Street car companies have also been asking for increases in rates for carrying letter carriers. The Postmaster-General fears, therefore, that even if the postal war tax is retained, increased cost may cause a deficit in the business of his department. He is said to be contemplating cutting down the list of persons entitled to exercise the franking privilege so as to leave practically only the members of Parliament with the right to mail letters free of postage. This plan may be criticized as simply taking money out of one Governmental pocket and putting it in another. It will, however, tend to distribute costs which are now borne only through the Post Office Department and tend to keep down or prevent a deficit in that department's operations.

"UNITED STATES STEEL TRUST WILL NOT PROFITEER"

AT the annual meeting of the United States Steel Corporation held this week, Judge Elbert H. Gary, chairman of the board, declared that the Steel Trust had not and would not profiteer. He stated that the Corporation was still holding to the selling price for its output fixed by agreement with the Industrial Board on March 21, 1919.

"We think there is a moral obligation on the part of everyone to use all reasonable efforts to check this carnival of greed and imposition, even at some sacrifice," he said, after speaking of "the increasing tendency to insist upon payment of unreasonable sums for every commodity.

"It should be the effort of all to establish and maintain a reasonable basis of prices, certainly to prevent further increases, otherwise the Government, from the standpoint of protection of a part of the public, must interfere," he added.

Judge Gary declared that labor should be subjected to Governmental control and regulation. He reiterated the intention of the company to maintain an open shop. Referring to the strike of last Fall, he said: "A small percentage of employees were members of labor unions. When they were called out they responded and as a result of threats and intimidations others temporarily quit work so that altogether about 26 per cent. of the men were out for a short time. The majority were steadfast and loyal."

RETAIN PROFITS TAX IN BRITAIN

IN view of the discussion which has been promoted in Canada with reference to the suggested substitution of a tax on turnover for the present tax levied on excess profits, the action of the British Chancellor of the Exchequer in retaining and even increasing the tax on excess profits to 60 per cent. is noteworthy. It had been the opinion in England that some substitute form of taxation would be adopted and the Chancellor's stand came as a distinct surprise. Various forms of taxation are receiving a great deal of attention at the present time, France having recently embarked on a policy of taxing each individual turnover 1 per cent. whether the amount of currency involved was small or great.

The budget speech of the British Chancellor indicates that the British Government is making successful strides towards the liquidation of its war debts.

The whole of the Anglo-French loan in the United States is expected to be paid off by next Autumn. This year there will be a substantial reduction in the national debt and the Chancellor promises that there will be no more borrowing to meet the floating debt.

It is evident that the British people will have to bear stiff taxation, but the ability to make substantial payments each year, in reduction of debts, will prove an incentive for greater production, and enable the development of foreign trade.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS NOTES

Galt, Ont.—Galt Brass Co. is enlarging its plant by two additions costing $50,000.

NEW BUSINESS

Otterville, Ont.—A. M. Roberts is commencing the plumbing and tinsmithing business.

PLUMBING ON CASH BASIS

Plumbers of Goderich, Ont., have decided to do business in future on a strictly cash basis.

BUSINESS CHANGES.

Maple Creek, Sask.—Geo. S. Lynch has taken over the shop of the A. A. Meneley & Co.

CONTRACTS AWARDED

Guelph, Ont.—The Guelph Housing Commission have accepted the tender of J. W. Oakes for the erection of 25 six roomed brick houses.

TENDERS

Sarnia, Ont. — Tenders will be received until May 5, 1920, for heating, ventilating and plumbing on Sarnia Collegiate and Technical School.

London, Ont. — Tenders will be called before the end of the month for the construction and equipment of a branch collegiate and public school. A five hundred room hotel is also planned.

PERSONAL.

W. W. Marshall has assumed the duties of Waterworks Engineer of Orangeville, Ont.

C. W. Wray, plumber, has accepted a position with the Steel Trough Co., Tweed, Ont.

Thomas Douglas, a returned soldier, is acting sanitary engineer for Weyburn, Sask.

MOSSE JAW PLUMBERS MAKE AGREEMENT RE WAGES AND HOURS.

Moose Jaw, Sask.—Plumbers in this city will receive $1 per hour for an eight-hour day during the coming year, according to the agreement reached between the men and their employers. The schedule was finally ratified by the employers after several conferences with the men.

WORK TO COMMENCE ON MILLION DOLLAR THEATRE

Hamilton, Ont. — Announcement is made by George Stroud, manager of the Savoy Theatre, that work on the new Pantages Theatre, which, when completed, will cost in the neighborhood of $1,000,000, exclusive of the money paid for the site on East King Street, will be proceeded with at once.

BUILD HOUSES ONLY.

London, England.—A crisis in the London building trades has been caused by the action of the London County Council in stopping all building, except residences, under powers granted by the Health Ministry to overcome the housing shortage.

Leading business men allege no more than 40 per cent. of the men displaced by this stoppage can be used in house building. It is declared unsafe to start any building costing more than $4,000.

WEYBURN FIRM RECOMMENCES BUSINESS

Weyburn, Sask.—Gallagher & Lythgoe, plumbers and steamfitters, have resumed business again after an absence of four years. Geo. Lythgoe, one of the firm, went overseas in 1915 and since returning has held two important positions with the Department of Soldiers' Civil Re-establishment and the Saskatchewan Returned Soldiers' Employment Commission. Mr. Gallagher, during the interval, was fire chief of Weyburn. Their place of business is on Souris Avenue, opposite Post Office.

To be No Deluge of Cheap German Goods on Canadian Market

German Iron and Steel Industry Threatened With Extinction—Germany No Longer a Force in International Commerce

"Germany's iron and steel industry is threatened with temporary extinction," according to a special dispatch from Berlin to The Iron Trade Review. "The recent tremendous political upheavals in Germany, with bolshevism for the moment rampant in Westphalia, Germany's Pittsburgh district, can have no good results, but they may serve at least to paint in clear outlines an important fact which has been known to close students of European industrial affairs for a year but which the average business man in Canada or the United States does not seem to have grasped—namely, that central Europe, including the once mighty Prussian empire, is a spent force in international commerce. As an iron and steel producer, in the international sense, Germany no longer counts.

"Those who have looked for a deluge of cheap German goods in American and British markets may safely lay aside their fears.

"The airtight blockade of the British navy during the war inflicted incalculable damage in the industrial sphere and forced the country to exhaust its supplies of finished and raw materials; the existing economic blockade resulting from the virtual extinction of the purchasing power of the mark is almost equally disastrous. Except vitally necessary food, much of which is sent by relief organizations, very few imports are coming into the country. The trade of the great port of Hamburg has dwindled to a tenth of its pre-war volume.

"German iron and steel production has been reduced to less than a third of its pre-war output. Pig iron production has diminished more or less steadily during the past seven years from 19,300,000 metric tons in 1913 to 6,290,000 metric tons in 1919. The output of steel ingots likewise fell from 18,940,000 tons in 1913 to 7,770,000 tons in the year recently closed. Dutch shipbuilders at Rotterdam are obliged to import American plates at high prices despite the fact that the centre of the once great German iron and steel industry is only 120 miles away, with a water haul down the Rhine thrown in. As a result of the war, Germany has been reduced from second to third place among the iron producing nations of the world, being supplanted in second position by Great Britain, the United States being first."

For More Effective Trade Advertising

Important Recommendations by Better Business Bureaus of the Associated Advertising Clubs of the World, to Encourage Cleaner and More Effective Advertising

The decidedly constructive character of the work of the Better Business Bureaus (local vigilance committees) of the Associated Advertising Clubs of the World is strikingly illustrated by some recommendations to advertisers issued by the Better Business Commission of Cleveland, which is affiliated with the Associated Advertising Clubs.

This matter has been prepared out of the experience of the best stores in that city, it is announced, and on the title page is the following: "Recommendations offered as a guide to advertisers to assist them in avoiding advertising statements and practices that have a tendency to reduce consumers' confidence in all advertising."

The text of the "recommendations" is as follows:

1. It is recommended that care be taken to substantiate definitely any fact or assertion made in an advertisement prior to the time the advertisement comes before the public.

Unintentional misrepresentations cause just as much criticism as intentional ones and the reader does not stop to consider that it may have been unintentional, the result being that the advertiser is criticized to an unjust extent and ensuing advertisements do not inspire the confidence they might deserve.

The wrong impression can be derived from an advertisement in which there is statement of one fact which is not well grounded.

2. It is recommended that the use of superlative statements be refrained from unless the advertiser can, and will, submit proof of such statements to the Better Business Commission if requested.

The force of superlatives in advertising has been considerably weakened through misuse. The public has a right to take superlative statements literally. The advertiser has a right to expect them to be taken literally when he has proof to substantiate them.

The repeated use of superlative statements which can not be substantiated, whether made by the same or different advertisers, destroys the confidence of the public in superlative statements which may be 100% truthful.

3. It is recommended that where comparative prices are being quoted, values be based on the average quotations for the same class of merchandise in other stores in the city.

The public determines value in this way and a statement of value means to the reader the average value as found in other stores.

4. It is recommended where comparative prices are being quoted that a definite distinction be made between "early season" values and "current" values based on the average quotation for the same class of merchandise in other stores in the city.

The wrong impression is created in the mind of the public when former or "early season" values are referred to and the reader interprets the statement to mean "current" values.

5. It is recommended where comparative prices are being quoted that when merchandise of different values has been grouped for sale at one price, the advertisement state the minimum value in the group as well as the maximum value.

The reader generally gets the wrong impression of the entire lot of merchandise when the highest values in the group are quoted and the advertisement does not state the lowest values. Where the lowest as well as the highest values are quoted the reader gets a better impression of the group and will not be subject to disappointment.

Greater confidence in the advertiser is inspired when the complete price range is clearly stated.

6. It is recommended where comparative prices are being quoted and merchandise of different values has been grouped together for sale at one price that each article bear a ticket indicating to which of the advertised values that article belongs.

The public should have no difficulty in ascertaining which articles of merchandise are of the various values stated in the advertisement.

7. It is recommended that extreme care be taken in advertising to avoid making statements which might be misconstrued.

Statements which can be misconstrued cause criticism of the advertiser to an extent which may be unjust.

Equivocal statements destroy confidence and invite suspicion.

8. It is recommended that when merchandise is being advertised which is soiled, of second quality, or for any reason whatever not perfect in every respect from the standpoint of the manufacturer, the advertisement state clearly and explicitly the facts as they are.

Unless such facts are clearly stated customers are disappointed when they come to the store in response to the advertisement, and confidence in advertising is lessened.

Not to state such facts clearly is judged by the Federal Trade Commission to be a violation of Special Provisions to Regulate Interstate Commerce.

9. It is recommended that when merchandise is being advertised which is an imitation of merchandise of higher quality or value, great care be taken that the advertisement does not convey the impression that the merchandise is the genuine quality.

There is danger of misrepresentation to the extent of fraud.

Even if from the sale price quoted it is obvious that the merchandise is not genuine, or even if the advertiser is under the impression that the public is informed generally that such merchandise is imitation, greater confidence is inspired in the advertising if care is taken to point out the facts clearly.

Demand Prepayment of Freight in United States Currency

United States Railways Impose Drastic Regulations — No Transhipment to be Allowed at Border Points

AN announcement which may have far-reaching effect on prices of commodities imported, either in the raw or finished state, from the United States, is that just made by United States railways, to the effect that on all freight shipments coming into Canada it will be required that freight be prepaid through to the destination in United States currency. This regulation has been hinted at for some time but definite action is now to be taken and the new arrangement will be in effect on and after May 1. No provision is made on the basis of comparative mileages which the freight is carried in Canada or the United States.

Some U. S. railways have also given notice that they will not only demand this prepayment but will also refuse any transhipment at border points. Canadian importers are therefore prevented from securing freight at the border by prepayment to border points and then paying the Canadian haul in Canadian currency.

On the basis of the present value of Canadian currency in New York, it is evident that the impost will be heavy on certain lines. On first glance it appears to mean an increase of $11.50 to $12 for each hundred dollars of freight charges.

Coal is one commodity which will be seriously affected by this action, and this being a basic requirement the effect will probably be felt through many other channels, apart from the direct increase in freight charges on other commodities themselves. Thus the effect of the new regulation will be reflected in many ways and increase either directly or indirectly costs of production.

SELL THE IDEA OF ELECTRIC APPLIANCES

Continued on page 30

compelled to translate the statement into terms of cents per hour to operate. And—

"If the translation is not made, the statement only serves to confuse. It fails to further the customer's understanding. Attention which should be devoted to following the salesman's talk is distracted by the effort to understand the technical phraseology.

"Rule 7.—Show Appliances in Actual Operation.

"The power of demonstration is too well recognized to require emphasis here.

"Telling the customer that a toaster, say, will, within two minutes, generate ample heat for toasting is a poor substitute for allowing the customer to place a hand near the appliance and discover by actual experience the heat radiating therefrom.

"If your display room is not equipped with Convenient Service Outlets, have some installed at once. The added sales effected through demonstrating the appliance will quickly pay for this slight expense incurred through installing outlets.

"Rule 8.—Don't Invite Consideration of Too Many Appliances.

"Attention must be concentrated upon one appliance before a purchase is made.

"The greater the number of appliances suggested the greater the number which must be eliminated from consideration before attention can be centred upon the one particular appliance it is held in mind to buy. Decide as quickly as may be possible in your own mind, which appliance will best suit the needs of the customer. Then concentrate your efforts upon selling that appliance. Make every reasonable effort to sell it before suggesting another one.

"That method becomes particularly desirable when you are dealing with a 'listener.'

"Rule 9.—Aim Always to Display the Best Make of Appliances First.

"In selling it is always easier to come down in the scale of quality and price than to start at the bottom and work up to the most costly. Also, a customer is always secretly flattered by being shown the most expensive article of a class first, even though it is in mind to purchase something less costly.

Frequently, too, such tactics lead to the sale of a better article than otherwise would have been sold. Besides—

"First impressions are apt to be lasting. So aim to have that first impression truly representative of the best in quality and service possible with the class of appliances in question. Display the best make of appliances first.

"Rule 10.—Attach to Appliance Tags Showing Price and Cost in Cents per Hour to Operate.

"Such tags are effective silent salesmen.

"Many of those who visit your store have used electrical appliances and are thoroughly sold on their manifold advantages. Frequently they come in with minds made up to purchase a certain type of appliance and require only to be told the price. In such instances the tag makes the sale, while you perhaps are busy with other customers. There are many occasions in even the best equipped and regulated stores when customers cannot be given attention immediately they have entered. At such times, the tags will prove helpful in occupying the customer's attention.

"Best of all is the service the tags perform in connection with the very generally observed human characterisitic. Many folks incline to place more confidence in what they read than they do in what is told them. And the tags serve to support the salesman's statement regarding the operating cost of the appliances.

"Note: Advise your customers to have current taps (Convenience Service Outlets) installed. It is bad practice to connect electrical appliances to lamp sockets, doubly bad when more than one is used. The wiring, on lighting fixtures, is not generally designed to carry the current needed by several appliances.

Pleads For Better Co-operation in East

National Development Possible Only by Co-operation

MONTREAL.— M. A. Brown, mayor of Medicine Hat, Alta., made an interesting address before the Canadian Manufacturers' Association at a luncheon held in Montreal this week. Mr. Brown contended that it was only through co-operation of business men in all parts of Canada that the national development of Canada's resources could become united. This was particularly the case as between the East and the West.

Mayor Brown is taking an interest in matters of this kind and he is at present the president of the Alberta Industrial Development Association. This is a non-political association and its function is that of co-operating with the Government of various Western provinces regarding the natural resources of the country.

"One of the greatest problems Canada has is your East and West problem," said Mr. Brown. "Failing the national development of our resources by the united efforts of the West and East it will become a real menace to our national developments."

Many local manufacturers and business men were present at the luncheon at which the above address was given and other interesting addresses were delivered by a number of men accompanying a delegation which came from the Western Provinces. Among these were Brig.-General H. J. McDonald, Col. W. J. Sadler, and others.

Among the important things pointed out by members of the delegation was the advantage of more frequent conferences between Eastern and Western interests. As a result of these addresses local business men have already agreed to give the Association above mentioned and the Industrial Congress, which is to be held in the West this year, their undivided and cordial support.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

WHILE the price changes have not been so numerous of late some important situations have developed since last issue and many lines, although showing no advances, are on the verge of higher prices. Soil pipe prices have been withdrawn as mentioned in last issue and the new prices have as yet not been announced. This also applies to range boilers. The enamelware situation is firm and higher tendencies are noted.

Higher prices have been made of pipe fittings, both cast and malleable iron. Some lines of valves are also higher. Files are also revised upwards.

Business throughout the trade is very brisk, regardless of the cool weather, and spring work is going ahead rapidly, which necessarily creates a heavy demand for material.

The time is fast approaching the proposed strike in the metal trades and many rumors are current. The tie-up of the United States railroads is causing great inconvenience to all and may be the means of holding up contracts later on for want of supplies.

Collections are very satisfactory and manufacturers and jobbers are advising the collecting of any outstanding accounts while times are good, so as to be assured should such a thing as the tightening up process in the money markets occur.

TORONTO, April 30. — Higher prices are not so numerous this issue, although some lines have been changed, while the tendency in all lines is for higher prices. Pipe fittings have been revised upward about 5 per cent. to 10 per cent. over former quotations; plumbers' compression work has also had a slightly higher revision. Soil pipe and range boiler prices are still withdrawn; file prices are also higher. Enamelware prices are very firm, with upward tendencies.

The cool weather has not seemed to have affected business and nearly all in the trade are enjoying a busy season, and considerable material is being handled. The tie-up of the United States railroad has been the cause of making the shortage of the already inadequate supplies of raw material more acute, and if the situation is not soon relieved many will be unable to continue operations, it is stated.

Collections are coming satisfactorily and manufacturers and jobbers are advising the collecting of outstanding accounts, while all are prosperous in order to be assured that should money tighten up or business become dull.

Some Makes of Valves Have Been Marked Higher

PLUMBERS COMPRESSION WORK.—Higher prices have recently been made on some lines of globe, angle and check valves. Although this is an advance over former quotations it is said to have been made with the view of bringing the prices on the brands affected more in line with kindred brands. The present demand for all lines of compression work is said to be a heavy one and a good volume of business has already been handled. Despite the fluctuations of the basic metals on the primary market nearly all prices are very firm with a strong tendency to advance. This may be due to the general condition of the markets on nearly all commodities as the ever-increasing prices in all lines are bound to have a reaction. The following list includes the new quotations:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	less Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

New Soil Pipe Prices Not Yet Available

SOIL PIPE.—No new prices have as yet been anounced to replace the former quotations on soil pipe which have been withdrawn. This is entirely due to the situation which has developed in the production of the raw material at the mills. The situation, it is stated, was none too favorable before the recent tie-up of the United States railroads, which seems to have paralyzed manufacturers and others so far as producing the finished commodity is concerned, and if condition is not soon overcome manufacturers in nearly all lines will be considerably handicapped. With the brisk opening of nearly all outside activities the present demand is a heavy one, and if the material comes to hand a record season is looked for throughout the trade. The following quotations are merely for use as a guide.

Medium and extra heavy soil pipe, 2, 3 5 and 6 in.	10%
Medium and extra heavy soil pipe, 4 in.	15%
Medium and extra heavy soil pipe fittings, 2 in. to 6 in.	25%
8 in. extra heavy pipe and fittings	5%

Range Boilers Scarce; Prices Still Withdrawn

RANGE BOILERS.—The prices on this commodity which were withdrawn have not as yet been announced, and there is little indication that the new prices will be immediately issued, although the majority in the trade are looking for the new schedule which is expected will be higher during the next week or ten days. The manufacturers state that owing to the uncertainty of the present markets they find it hard to make a schedule that they can rely on for any length of time as deliveries are uncertain, raw material scarce, and labor high and unsettled. It is hard to state what the future will show for commodities manufactured from iron or steel. The present unsatisfactory condition of begging the mills for even small tonnages does not seem popular with the manufacturer who states that owing to such conditions they are unable to make any price schedule that would hold for any reasonable length of time.

Range Boilers—	Standard	Ex. Heavy
30-gallon	$12 00	$14 00
35-gallon	14 00	16 00
40-gallon	16 00	18 00
52-gallon	22 00	25 00
66-gallon	35 00	38 00
82-gallon	40 00	47 00
100-gallon	50 00	58 00
120-gallon	60 00	67 00

Prices on Cotton Waste Firm; Good Demand

COTTON WASTE.—Although the present quotations on cotton waste are very firm no change in prices have been made and no immediate changes are looked for. It is hard to state, however, what the future will show. The raw materials on the primary markets have gradually been advancing and many lines manufactured from cotton have recently attained higher prices. This is attributed

to the European situation and the fact that the world's markets are bare may be significant. Jobbers and dealers generally express satisfaction with the present demand and state that so far the season's turnover has been a large one. It is believed that warehouses have fair stocks and all indications point to a heavy turnover during the year. The present quotations are held firmly at the following prices:

WASTE		
Cream, Polishing	....	0 25
WHITE		
XXX	....	0 22½
XX	....	0 20½
X	....	0 18½
XC	....	0 17½
Japanese	....	0 17
XXX	....	0 24
XX, grad.	....	0 22½
XLCR	....	0 21
X Empire	....	0 19½
X Press	....	0 17½
X Special	....	0 15½
COLORED		
No. 5	....	0 16¾
No. 1	....	0 16½
No. 7	....	0 15
No. 1A	....	0 13¾
No. 1B	....	0 11¾
Fancy	....	0 19
Lion	....	0 17
Standard	....	0 15
Popular	....	0 13
Keen	....	0 11

Above lines subject to trade discount for quantity.

Prices on Lead and Zinc Products Hold Firm

LEAD AND ZINC PRODUCTS.—The demand for this commodity continues to be heavy, and a good volume of business is being handled. Solder is holding at a very firm figure, and although no immediate change is expected it is believed that no lower prices will be made for some time. Lead pipe and lead waste pipe are beginning to move very freely and the demand is continually growing heavier. This also includes lead traps and bends, lead roll, lead sheets, etc. The following are the present quotations:

Lead pipe, list, per lb.	0 17½
Lead waste pipe, list, per lb.	0 18½
Do., over 8 inches, list, per lb.	0 19½
Above subject to discount of 10 per cent.	
Lead traps and bends	add 30%
Lead wool, lb.	0 16
Lead sheets, 4 to 6 lbs. sq. ft., in rolls. per lb.	0 14
Cut sheets, ½ to ¾c lb. extra, and cut to size 1c lb. extra.	
Solder, wire, lb.	0 45¾
Solder, strictly, lb.	0 43
Solder, commercial, lb.	0 40
Zinc sheets, per lb.	0 19
Solder, guaranteed, lb.	0 43¾
Solder, wiping, lb.	0 40

Corrugated Sheets Scarce; No Raw Material Coming

CORRUGATED SHEETS.—The difficulty in securing flat sheets continues to be the chief worry of the manufacturers at present and not a few are wondering what the future outcome will be if sheets do not come along in better and larger quantities. One manufacturer stated that some are commencing to feel the results of the clogged-up machinery caused by the United States railroad strike, and stated that many mills in the States were clogged up with the raw materials and others with the finished product and yet no one was able to ship any commodities that were turned out and manufacturers found it was necessary to store them in the yards and around the building, whereas they should be put directly on the cars and shipped. It may be that sheets will come better after the strike is settled but the majority seem to doubt it as they believe that the mills are seriously held up with their production and it will be hard for them to catch up with their orders. The following are the present quotataions on corrugated sheets.

CORRUGATED SHEETS—	Per 100 sq. feet Galv'd	Painted
No. 28-gauge	$ 9 25	$ 7 75
No. 26-gauge	10 00	8 75
No. 24-gauge	15 00	11 00
No. 22-gauge	17 50	13 75
No. 20-gauge	21 00	17 50
No. 18-gauge	26 50	21 50

On shipments of 300 lbs. and over, freight is allowed south and east of and including North Bay; also several western counties in Quebec Province. Places north and west of North Bay, the freight is equalized on North Bay. For Quebec and Maritime Provinces, freight is equalized on Montreal.

Ad 5% to above list.

Boiler Tube Stocks; Fair Price Unchanged

BOILER TUBES.—A fairly heavy demand has been noted for boiler tubes although the season is a little off and is approaching a seasonable slackness, it is stated. Jobbers state they are fairly well caught up with their orders and have fair stocks in their warehouses and are preparing for a good volume of business which usually starts in around the season of the year when fires are let out. The tying up of the United States railroads, it is stated, has not caused any shortage or famine in this line as jobbers state they have been fortunate enough to receive fairly heavy shipments just previous to when the strike took effect. It may be, however, that certain few sizes are short, mostly pertaining to the most popular. Some are of the opinion that boiler tubes may be scarce when the heavy demand starts in as the present situation of skelp is not at all satisfactory, being very hard to procure. The mills are said to be rushed to capacity and still the demand is greater than the supply. However, some state that the skelp mills have in some cases been forced to shut down owing to the tie-up of raw material and other commodities used in the manufacture of skelp. The following are the present quotations on boiler tubes.

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	$.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 50	30 00
2 inch	32 00	28 75
2¼ inch	36 00	31 25
2½ inch	45 00	35 75
3½ inch	69 00	48 75
4 inch	96 00	62 50
3 inch	53 00	45 75
3¼ inch	.....	52 50

Scarcity of Sheets and Plates Not Relieved

SHEETS AND PLATES.—Local stocks of sheets and plates continue to be very low. Although the situation is said to have improved somewhat, jobbers state there is no sufficient sheets to anywhere near supply the present demand, which is becoming daily more heavy and persistent. With the approach of warmer weather many projects are beginning to open out, and building is rapidly extending operations. Some jobbers stated that they expected that their stocks would be in much better condition at this season of the year had it not been for the strike on the United States railroads which tied up shipments in transit and incidentally kept them back several weeks although they stated they had received some shipments, but the demand is so great that most of the stock came direct from the car without ever entering the warehouse. Many are looking forward to the announcement by the mills of their second period business. The following quotations are being quoted by some, although they are more or less nominal owing the great scarcity. It is believed that very few have complete list of sizes in stock at present.

BLACK SHEETS		
14 gauge	....	8 00
16 gauge	....	8 10
18-20 gauge	....	7 95
22-24 gauge	....	8 00
26 gauge	....	8 05
28 gauge	....	8 15
3-16 inch plate	....	....
¼-inch boiler plate	....	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS	Premier		Apollo	
10¾ oz.	$10 00	$11 50	$10 75	$12 00
U.S. 28	10 20	11 70	10 35	11 45
U.S. 26	9 90	11 40	10 05	11 15
22 and 24	9 75	11 25	9 90	11 00
18 and 20	9 60	11 10	9 75	10 85
16	9 45	10 95	9 60	10 70
12 and 14	8 70	10 20	9 45	10 55

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Weak Tendency Shown on Waste Materials

SCRAP AND WASTE MATERIALS.—The prices on nearly all lines of scrap and waste products remain practically unchanged, although the present situation is a peculiar one, and dealers state there is not the demand that they had expected this season of the year. This may be due to the recent tie-up of the American railroads, which have caused a number of the mills to either shut down of else slacken up in their operation for want of raw materials, etc., which could not be moved owing to the freight embargo. The present position of metals composed of iron or steel is very firm, while those of copper and brass, etc., show a tendency for weaker prices. Stove scrap and cast iron is still very hard to procure and price quotations are generally nominal. The following are the present quotations:

DEALERS' BUYING PRICES		
Pipe scrap	....	11 00
No. 2 busheling	....	13 00
Stove plate, per ton	....	....
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 08
Scrap zinc	....	0 06½
Heavy copper	....	0 17
No. 1 machinery cast	....	....
Wrought iron, No. 1, per gr. ton	....	15 00
Heavy melting steel	....	15 00
Heavy lead pipe	....	0 06
Old rubbers, boots and shoes	....	0 06
Overshoes. lumbermen's rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 04
Heavy lead pipe	....	0 06

ANNOUNCEMENT

The

H. Mueller Mfg. Company

Limited

has arranged with the patentee for the exclusive rights to manufacture in Canada

Niedecken Mixing Valves

for showers

Niedecken Mixing Valves are recognized as the most efficient on the market. They are specified by the leading architects in Canada and United States. Full particulars with illustrated printed matter furnished on request.

H. Mueller Mfg. Company

Limited

SARNIA, CANADA

Wrought Pipe Scarce; No Improvement Shown

WROUGHT PIPE prices are very firm and the tendency is for higher quotations. Stocks generally are said to be very light, the present outlook for wrought pipe, both iron and steel, does not look very promising according to the opinions of manufacturers and jobbers locally. Manufacturers state they have been practically tied up in the manufacture since the strike on the American railroads. It is stated that one manufacturer was practically closed down for several days and that others are working on broken time as a result of the coal shortage, and in other instances some mills have sufficient steel and no coal, while other mills have sufficient coal with no steel or iron as the case may be, and owing to the tie-up are unable to remedy the situation. Jobbers say they have great difficulty in securing the larger sizes. The present price is holding very firm, and although the price is not changed it is hard to say just what the future will show owing to the disrupted conditions of the markets generally. The following are the list of prices in effect at present:

PIPE—WROUGHT

Price List No. 44—April 8, 1920.
STANDARD BUTTWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
⅛ in.	$6 50	$ 8 50	....	....
¼ in.	5 13	7 26	$ 5 43	$ 7 56
⅜ in.	5 13	7 26	5 43	7 56
½ in.	6 84	8 42	7 27	8 84
¾ in.	8 45	10 58	9 03	11 16
1 in.	12 50	15 64	13 35	16 49
1¼ in.	16 91	21 16	18 06	22 31
1½ in.	20 21	25 30	21 59	26 68
2 in.	27 20	34 04	29 05	35 89
2½ in.	48 00	58 82	....	....
3 in.	56 23	70 38	....	....
3½ in.	71 30	88 32	....	....
4 in.	84 48	104 64	....	....

STANDARD LAPWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
2 in.	$30 90	$37 74	$34 60	$41 44
2½ in.	45 34	56 16	51 19	62 01
3 in.	59 29	73 44	66 94	81 09
3½ in.	73 14	90 16	82 34	99 36
4 in.	86 66	106 82	97 56	117 72
4½ in.	0 98	1 23	1 24	1 49
5 in.	1 15	1 44	1 44	1 73
6 in.	1 49	1 86	1 87	2 25
7 in.	1 94	2 43	2 42	2 90
8-L in.	2 04	2 55	2 54	3 05
8 in.	2 35	2 94	2 92	3 51
9 in.	2 81	3 52	3 50	4 21
10-L in.	2 61	3 26	3 25	3 90
10 in.	3 36	4 20	4 18	5 03

Terms—2% cash discount if paid within 30 days. Approved credit.

Black Diamond Files, Also Nicholson Advance 5%

FILES are in line with other commodities whose basic material is iron or steel. Some makes of files have been revised to higher price levels. The Black Diamond are now quoted at 25 per cent. discount. Nicholson are also quoted at a discount of 25 per cent. in place of a former 30 per cent.

Advances of 5% to 10% Made on Pipe Fittings

PIPE FITTINGS.—The firm price which has held on pipe fittings for some time has been revised upwards, and the new quotations are approximately from 5 per cent. to 10 per cent. higher. The new prices, it is stated, are the result of continued shortage and higher prices of raw material, labor and other factors. Business continues very brisk and the difficulty of supplying the demand, especially of some sizes, continues to be experienced by the manufacturer and jobber. Especially is this true of some of the most popular sizes. The following are the present quotations.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Firm Prices on Conductor Pipe and Eavestrough

EAVESTROUGH AND CONDUCTOR PIPE.—Notwithstanding the great shortage which has prevailed in the sheet market, manufacturers of eavestrough conductor pipe and kindred lines state they have been fairly successful in securing material for making a fair quantity of the above-mentioned commodity. No change has recently been made in prices although the present quotations are very firm. The spring demand has started in full swing regardless of the cool weather which has prevailed, and all in the trade are looking for a good year's turnover. The following are the present quotations:

PIPE (Conductor)
Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10 ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in.	$6 90	15-in.	$12 50
10-in.	7 70	18-in.	16 00
12-in.	9 10		

F.O.B. Toronto, Oshawa, Ottawa.
Add 5% to the above list.

Enamel Ware Prices Firm; Situation Unchanged

ENAMELWARE.—Prices on nearly all lines of enamelware are very firm and higher quotations in the near future would not surprise many of the better informed. The present situation which has developed in the securing of raw material is said to be a big factor for advanced prices. The higher cost of material, labor and nearly all commodities connected with the manufacture of this commodity are also said to have the effect of strengthening the market considerably. The present quotations are as follows:

Bath tubs, roll rim, 4. 4½, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4345			11 05
18x24" Apron F154 or P3845 or P3847			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9.05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Metal Prices Unchanged; Some Fluctuations

INGOT METALS.—Although there has been considerable fluctuations on nearly all these metals listed, prices show no change over former quotations. Buying is said to be very light as the market seems to be in an erratic condition, losing one day and recovering the next. Stocks are still very light and a fair demand continues.

LEAD has fluctuated considerably but continued to quote at unchanged prices. The present price being 11½ cents per pound.

SPELTER has also fluctuated to some extent but remains at the non-changed price of 11½ cents per pound.

ANTIMONY.—The market conditions on this metal are unchanged and stocks are considered rather light. The selling price continues around 15 cents per pound.

COPPER.—Little change has been made in the price of copper, the present demand being rather light. The present quotation is 24 cents a pound.

ALUMINUM prices remain unchanged with little demand showing, the present quotations being 36 to 37 cents per pound.

TIN prices have fluctuated considerably during the week although the present quotations show no change over last week's quotations and is still holding at 74 cents per pound.

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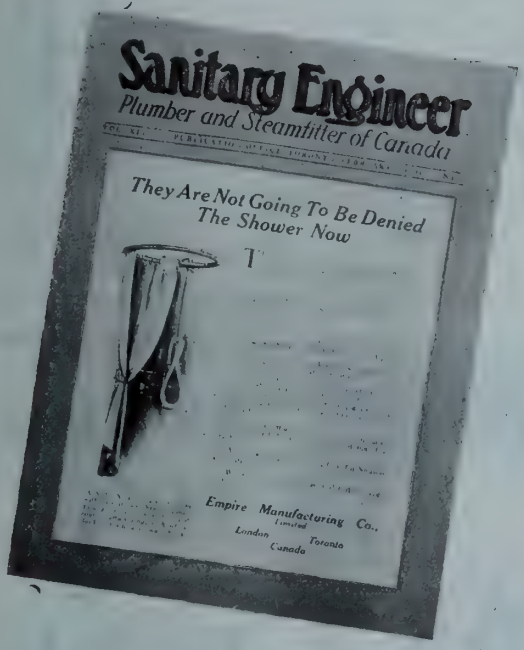
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"PLUMBING REPAIRS WILL BE CASH." A story telling how 10 Brantford plumbing firms have placed their businesses on a cash basis.

"RIGHT ON THE JOB—GET BUSINESS." An illustrated story telling how Brousseau and Frere, Quebec, Que., have built up a big business on a small beginning. Their methods are described in this issue.

"SASKATCHEWAN CONVENTION REPORT." A detailed report of the convention of the Saskatchewan Society of Sanitary and Heating Engineers held at Saskatoon.

"CONTRACTS AND CREDITS." An address delivered by Neal Beaton, of Beaton & Brady, Saskatoon, before the Saskatchewan Convention.

"SEWAGE DISPOSAL FOR SMALL COMMUNITIES." Fourth article of a splendid series of articles by B. T. Ellis for which SANITARY ENGINEER has the exclusive publication rights for Canada.

"VENTILATION AND EXHAUST SYSTEMS." An address delivered by C. W. Keniston at a recent convention held in Milwaukee.

"TEST YOURSELF WITH THESE QUESTIONS." A test which you can apply to yourself. It consists of 65 questions and will enable you to check up the results of your personal effort and also of your business.

"RUMOR OF A TAX ON SALES IN CANADA." Details regarding the proposed turnover tax and how it will work out.

"MONTREAL CRAFT SEES ENCOURAGEMENT." A page of interesting information regarding the activities of the Montreal organization.

"THOUGHTS." By Napolean Hill—a page of inspirational reading matter.

"BUILDING ACTIVE DURING FEBRUARY." Complete Details regarding the building permits issued in Eastern and Western Canada cities.

"EDITORIAL." Success and Profiteering—Under Production and Over Production—Increasing Sales—Turnover Tax—Causes of Inflation—Are You Insured?

"NEWS FROM HERE AND THERE." A bright breezy page giving news gathered from various sources.

"MARKET CONDITIONS AND TENDENCIES." Two pages of bright accurate market information giving actual prices quoted on goods used by the plumbing and heating trade.

The above is a partial list of the editorial contents of the April 1 issue.

The April 15th issue contained, among other features, a complete report of the Ontario Society of Domestic Sanitary and Heating Engineers' Convention, held at Toronto.

Pin $1.00 to the coupon below, mail it to the address given below, and you will immediately start receiving twice monthly a paper that is easily worth more than the subscription for any one single issue. SANITARY ENGINEER is one of the sixteen papers published by the Mac Lean Publishing Company. It has been published twice monthly since 1907. Most good plumbing and heating engineers are now subscribers. If you are one of the few not subscribing, **ACT NOW.**

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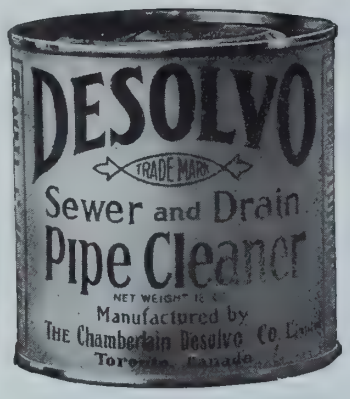

K.K. Cleans Closet Bowls
Desolvo Clears Clogged Pipes

K. K. is an efficient preparation, the usefulness of which makes quick and continuous sales. It cleans closet bowls, removing quickly and easily all stains, and makes a disagreeable job more agreeable for the housekeeper.

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General Offices **Pittsburg, Pa.**

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Richardson & Bureau,
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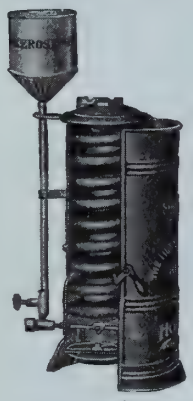
Ontario and Western Representative:
L. F. Mayne, 99 Quebec St.,
Toronto.

The Hotstream
HEATS IN A HURRY
TRADE MARK REG.
WATER HEATER

Kerosene Water Heater



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Works like a gas heater — easy to operate.

WICKLESS burner generates its own gas and throws a clean powerful flame.

This heater is guaranteed to give SATISFACTORY SERVICE.

Once sold — stays sold — no come-backs.

The price is low — the season is here—send for descriptive folder to-day.

The Hotstream Heater Company
"Makers of heaters that heat"
Cleveland, Ohio

(We make a complete line of single and double copper coil, cast-iron coil, and sectional gas water heaters.)

W. H. CUNNINGHAM & CO.,
183 Church St., Toronto
Canadian Representatives

This is a "Q" Foot Valve

And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

R. McDOUGALL CO., LTD.
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The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Iron Co. Limited
Montreal

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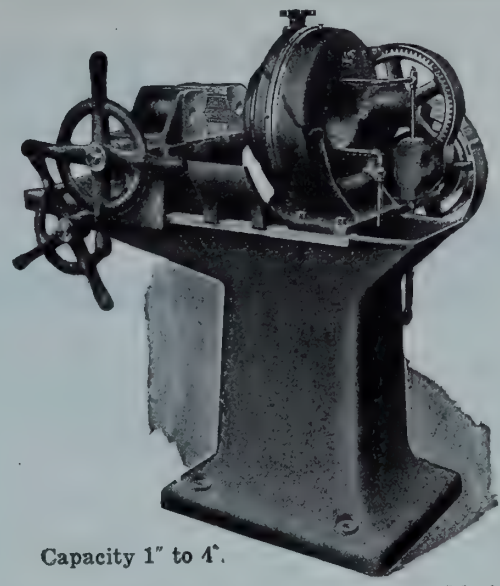

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The Hall Simplex Improved No. 4 Pipe Machine

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Pipe threading machines ...	⅛ to 18"
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BRANTFORD, CANADA

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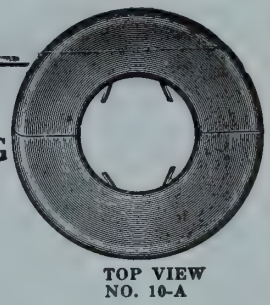

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Gem No. 4.

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.

Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.
New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

TRIMO

The four good points that make TRIMO PIPE WRENCHES superior are the SPIRAL SPRING always in place, STEEL FRAMES that will not break, NUT GUARDS that protect adjustment nut and the INSERTED JAW in handle that can be replaced when worn.

The Trimo Steel Handle Pipe Wrench is also made in the 6", 8" and 10" size with narrow jaws and fine milled teeth, especially adapted for close work.

Your Jobber can Supply

Trimont Mfg. Company

Roxbury (Boston) Mass., U.S.A.

GENUINE

ARMSTRONG STOCKS and DIES

Hinged Pipe Vises *Pipe Cutters*

Pipe Threading Machines

—MANUFACTURED BY—

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"BC" COMBINATION COLD ROLLED STEEL Floor and Ceiling PLATES

Carried by the leading supply houses

Put just the right finish on that heating job

Send for catalog of complete line of "B. & C." goods.

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The Beaton & Corbin Mfg., Co. Southington, Conn., U.S.A.

The Old Original Company

"HAUSE" PIPE JOINT CEMENT

For steam, water, air, oil, gas, gaskets, etc. The cement that cements. Sets like gum. Allows no leaks.

The Great Value of "HAUSE PIPE JOINT CEMENT" lies in its peculiar chemical properties which permits of its hardening and expanding after the joints are made up. In making up joints it has the same effect as a lubricant on the best graphite, and while the joints may be made and broken readily, a perfectly tight joint is maintained at all times. Comes in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans, 100-lb. barrels. Manufactured in ready mixed and powder form. Ask your jobber for prices, or write us direct.

Made in Omaha, Neb., U.S.A.,

Manufactured in Ready Mixed and Powder Form.

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BOOKS

on all branches of Engineering and every conceivable subject. Second-hand at half prices. New at lowest prices. State wants and send for Catalogue No. 23, post free.

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FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

"VALVENE" Discs (REGISTERED)

Specially prepared for Hot and Cold Water Taps. All sizes from ½ inch to 1½ inches. Soft, pliable, and "Joint-Perfect."

Price List and Samples on Application.

THE COMMERCIAL INDIA RUBBER MANUFACTURING & SUPPLY CO., LIMITED

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WE CARRY A FULL LINE OF

BOILERS, RADIATORS, WARM AIR FURNACES AND REGISTERS

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REG. U.S. PAT. OFF.

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10 Good Reasons

1 Quick Releasing
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3 Adjustable Chuck
4 Replaceable Lead Screw
5 Replaceable Lead Nut
6 Chip Proof
7 Adjustable Chuck
8 Frictionless
9 Cuts Close Nipples
10 No Stripping

Cuts from one to two-inches

Bill Smith Can Smile

He's just ready to tackle one of those mean—ornery—knuckle busting pipe threading jobs in the corner, way up near the roof where the steam pipes come in—*and he smiles.*

Bill should fret—he's got a

Greenfield Ratchet Receding Pipe Threader

Easy cutting—ratchet action—no unwinding on the pipe or off.

TRY THE TRIO

3 ies in one stock — no return trips for lost dies — always ready — simple — compact — complete.

"WELLS" PIPE WRENCH

The wrench with the bulldog grip—forged for service.

Little Giant

WELLS BROS.

Company of Ltd. Galt, Ontario

Canadian Plant of the Greenfield Tap & Die Corp

CANADA

World's Largest Manufacturers of Screw Cutting Tools

COUPON.

S.E.C. 803

Wells Bros., Company of Canada, Ltd.
Please send me your No. 42 Pipe Tool Catalog describing "The Complete Line" of Pipe Tools. I am especially interested in Threading Tools [ ] Wrenches [ ]

Name .....

Company .....

Address .....

Nearly Half-a-Million Now In Use

There Must Be a Reason

THE feature that sells the VitrO is a simple one. It is as perfect a tank as it is possible to make.

Its mechanical perfection, yet ideal simplicity makes it the "Last Word" in tanks.

We stand behind each VitrO Tank because we know that every fitting is tested, and a tank passed by the plant inspector has never yet been known to give dissatisfaction.

It's an all-one-piece tank—no metal linings to leak.

Your Jobber Handles It

GALT BRASS COMPANY, LIMITED

GALT, CANADA

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, MAY 15, 1920 No. 10

Empire Quick Pression Basin and Shampoo Cock

Here is an Empire sanitary fixture which for attractive design and simplicity of operation is a valued asset in a barber's shop.

It is designed to fit any size lavatory, and water can be run from the shampoo outlet or for the basin without the necessity of turning on or off two or more taps.

All the cocks are on the quick pression principle, insuring absolute shut-off and durability.

It is a time-saver especially constructed to meet every requirement for barber shops.

It is efficient, durable and sanitary as all Empire fixtures must be before they leave the factory backed by the Empire guarantee.

WRITE FOR OUR CATALOGUE

Empire Manufacturing Company, Limited

London and Toronto, Canada

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, Nova Scotia

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No. 259

Write for Text Book on
CORROSION
showing why it is better to use

TONCAN METAL

where durability is essential.

We have a fair stock for prompt shipment, and the price is comparatively moderate.

These Sheets galvanized and stocked in Canada by—

DOMINION SHEET METAL CORPORATION, HAMILTON

Sold by Leading Jobbers.

DOMINION SHEET METAL CORP. LTD
MADE IN PREMIER CANADA
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Look for Talk No. 260 Next Issue

SANITARY ENGINEER, May 15, 1920, Vol. XIV., No. 10. Published 1st and 15th or every month at 143-153 University Avenue, Toronto, by the MacLean Publishing Co., Ltd. Yearly subscription price, Canada, $1.00; United States, $1.50; Great Britain and the Colonies, 4s. 6d.; elsewhere, $2.00. Entered as second-class matter at the Post Office, Ottawa. Entered as second-class matter July 1st, 1912, at the Post Office at Buffalo under the Act of March 3rd, 1879.

WILLIAMS' SUPERIOR DROP-FORGED WRENCHES

Better tools make better workmen—

And you can't buy a better wrench than a Williams'

J. H. WILLIAMS & CO.
"The Wrench People"

77 So. Clinton St., CHICAGO, ILL.
77 Vulcan St., BUFFALO, N. Y.
77 Richards St. BROOKLYN, N. Y.

Western Canadian Agents: W. Bruce Campbell, 77 Confederation Life Bldg., Winnipeg, Can.

Pipe Fittings

Made in Canada

The Brand that has the Quality

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

CAST IRON FITTINGS

With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS

With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

Tell the World!

A Little "Straight Talk" to the Canadian Plumbing Trade

The merchant of to-day who does not advertise loses the power of a great force which is placed at his disposal. It has been said that to stop advertising is like taking down one's sign. Every sanitary engineer has in his Canadian town or city the opportunity for using his local newspaper to give the people of his community a vital message.

There should be no lack of important matter for such advertising. So much remains to be urged upon householders in the way of advising them to use better sanitary arrangements, to replace antiquated fixtures, to instal fittings of the best quality and type, that the advertisement-writer need not suffer embarrassment. He should give a straight-from-the-shoulder message and use his newspaper space for snappy, newsy announcements week by week. The old-fashioned statement, "Wm. Smith, Plumber. Best Work at Lowest Prices," is an easy way of spending money for practically no result.

George Cohan, the well-known actor-manager, says: "Caesar was an advertiser on a big scale, and all the early Greeks weren't ashamed of themselves. Anybody who ever did anything, advertised, or was advertised." Elbert Hubbard remarked: "The only man who should not advertise is the one who has nothing to offer in the way of service or who cannot make good." Zimmie says: "An advertisement does more business for its size than anything else, except, perhaps, a black ant up a fellow's trouser-leg."

If any man in our particular line feels the need of assistance in preparing advertisements, he should write to us direct or to the publishers of this paper. In either case he will be given quick and effective aid. There should be no reason for failure to "tell the world" of our ability and readiness to be of service. To quote Hubbard again: "Advertising is the advance agent of prosperity."

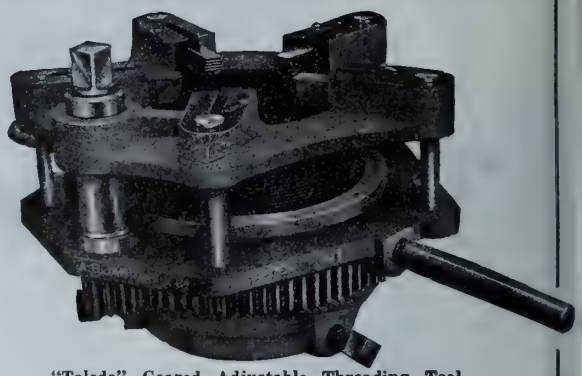
Quality—Efficiency—Service

TRADE B.O.T. MARK

THE CANADIAN BRASS CO.
LIMITED
GALT, ONTARIO

CANADIAN BRASS GALT ONT

JARDINE and TOLEDO PIPE THREADING TOOLS



"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2½ to ½ in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or jim cracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

SEND FOR CATALOGUE

A. B. JARDINE & COMPANY, Ltd., HESPELER, ONT.

Sole makers of "Jardine" Pipe-Threading Tools.
Sole licensees to manufacture and sell Toledo Pipe-Threading Tools in Canada.
Agents, Winnipeg and West—Stanley Brock, Ltd., Winnipeg, Man.
Brockville and East—J. R. Devereux, 358 Beaver Hall Square, Montreal.
Belleville and West—W. H. Cunningham & Co., 183 Church St., Toronto, Ont.

There Are Lots of Gate Valves

Advertised and Sold

but not all of them possess that neat appearance, combined with strength and stability, which characterizes

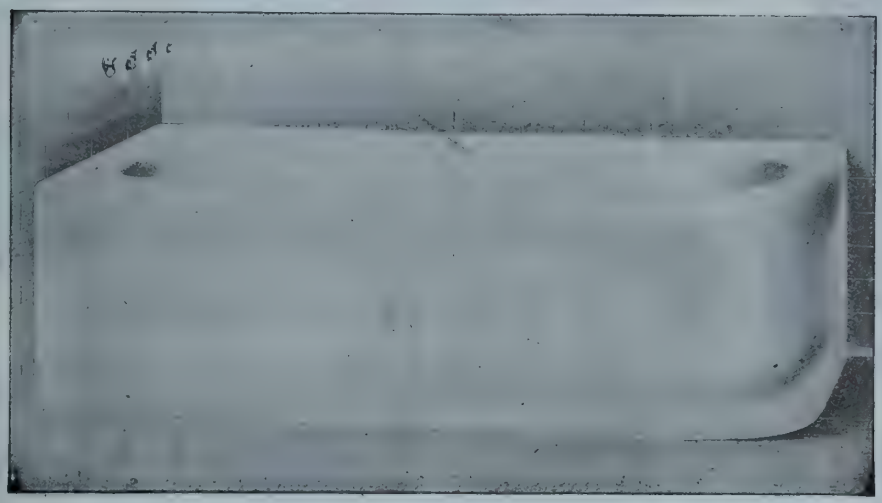
KERR IRON BODY GATE VALVES

Specify KERR'S (KEYSTONE) Iron Body Gate Valves on your next order, and let us prove what we claim for them.
Our Catalogue No. 5 tells all about them. It is yours for the asking. Write us to-day.
Approved by the Fire Underwriters' Association, and Registered by Boiler Inspection Departments of Ontario, Saskatchewan and Alberta.

THE KERR ENGINE COMPANY, LIMITED - Walkerville, Ontario

"Standard"
"Perfection" Built-in Baths

Made in One Piece Enamelled All Over



These Baths represent the last word in design and finish, and are made to build into Right or Left Hand Corner or into a Recess.

The "Perfection" Built-in-Bath is only 17½ inches high, therefore convenient. It builds into walls and floors, the absence of all dust-collecting cracks and corners meaning bathroom sanitation.

Made in 5 and 5½ foot sizes.

Illustrations on request.

Write the nearest dealer

Standard Sanitary Mfg. Co.
Limited

General Office and Factory: Royce and Lansdowne Aves., Toronto, Ontario

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Winnipeg Showrooms:
76 Lombard Street

Hamilton Store:
20-28 Jackson Street West

Montreal:
358 Beaver Hall Square

Calgary:
325 Eighth Avenue West

Vancouver:
847 Beatty Street

"MADE IN CANADA"

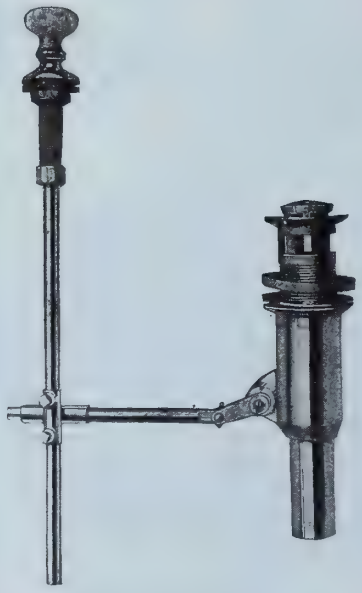
Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?

Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE: 136 SIMCOE ST., TORONTO



ALLINGHAM POP-UP WASTE

DESCRIPTION

Allingham Pop-Up Waste (Patented), Nickel-Plated, with China Waste Knob, indirect action (raising knob closes plug, lowering knob opens plug).

MEASUREMENTS

Diameter of flange under waste knob 1¾ inches. Diameter of flange inside hole 2⅛ inches. Diameter of flange below bowl 2⅜ inches. Outside diameter of outlet tube 1¼ inches.

The Allingham Waste is sanitary. The Waste Plug can be removed and cleaned without touching other parts. It is simple and mechanically correct. It is easily adjusted for friction or lift rod. It is reversible and can be easily changed from indirect to direct action if desired.

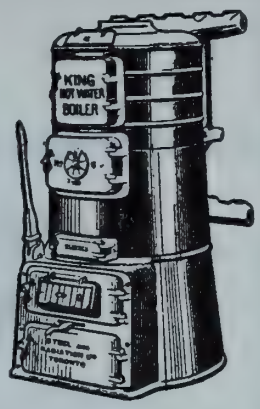
The Wallaceburg Brass & Iron Manufacturing Co., Limited

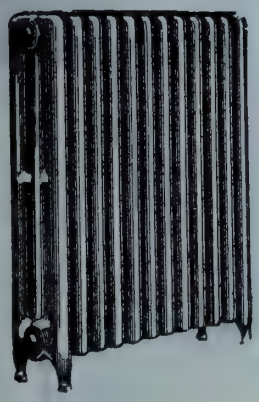
WALLACEBURG, ONT.

TORONTO	WINNIPEG	MONTREAL
10 Wellington St. E. Phone : Main 2355	Galt Building Phone : Garry 3389	358 Beaver Hall Sq. Phone : Main 7513
Mr. L. N. Vanstone	Moncrieff & Endress, Ltd.	J. R. Devereux & Co.

Recommend an Efficient Heating System To Your Customers

Character in a Heating System, like character in a man, is not fixed by any one quality. It is an aggregate of many qualities, and the value of the final product depends upon how well each and every one of these varying factors is assembled in the finished product.





KING HOT WATER BOILERS AND IMPERIAL RADIATORS

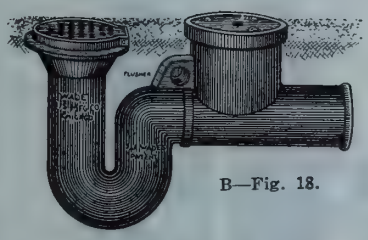
Considered as a whole, King Hot Water Boilers possess these attributes to the highest degree, and are backed by a policy of manufacture which has developed and maintained this character for every product bearing our name. The result is "Built-in" quality. Your customers will be perfectly satisfied with a King Hot Water System.

STEEL AND RADIATION LIMITED

Manufacturers of Hot Water *and* Steam Boilers *and* Radiators; Fenestra Steel Sash *and* Concrete Reinforcing

Head Office: Fraser Ave., Toronto **Sales Offices : Montreal, Toronto, Quebec**

Western Agents: The J. H. Ashdown Hardware Co., Ltd., Winnipeg
A Complete stock of all lines is carried at our Montreal warehouse.



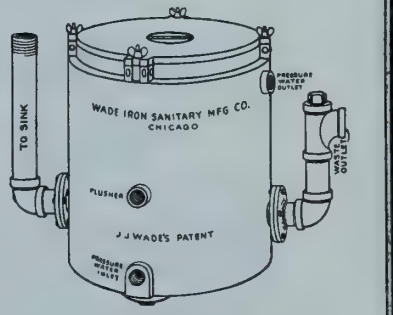
B—Fig. 18.

Wade Accessible Clean-out Drain Flushing Cesspool Back Water Gate Trap—Valve Combination.

Plan on Installing WADE Up to date FITTINGS in 1920

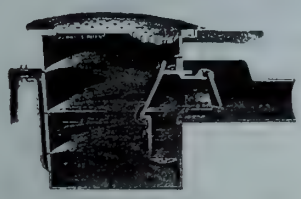
WADE Back Water Gate Valves and House Drainage, Sewer Flushing Fittings embody the latest improvements in design and construction.

They are approved by sanitary engineers and comply with health ordinances.

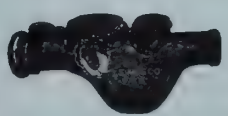


B—Fig. 27.
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

Wade Iron Sanitary Manufacturing Co. 551 W. Fulton St, CHICAGO



B—Fig. 126.
Wade accessible flushing cleanout floor wash and backwater valve combination.



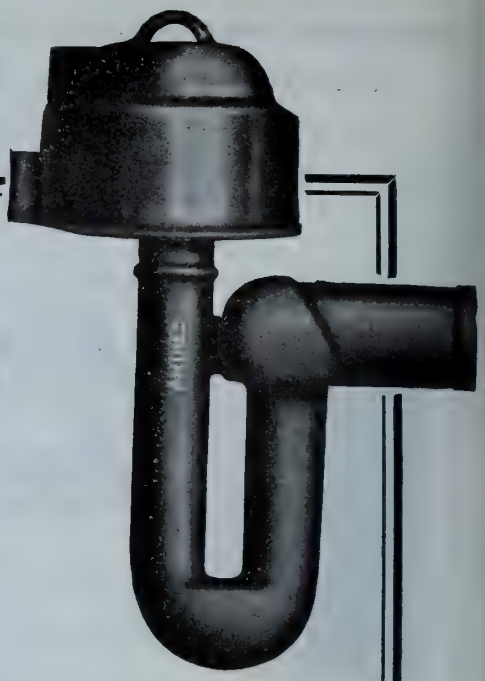
B—Fig. 13.

Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.

Send for Catalogue

B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.



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Tuesday, Wednesday and Thursday

JUNE 8th, 9th and 10th, 1920

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Yours for co-operation,
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President

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XIV. TORONTO, MAY 15, 1920 No. 10

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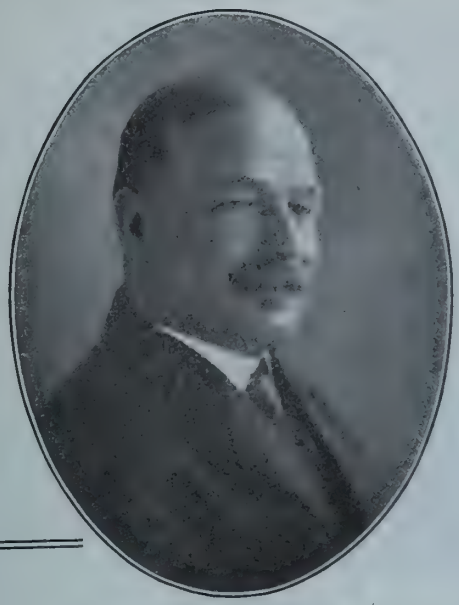

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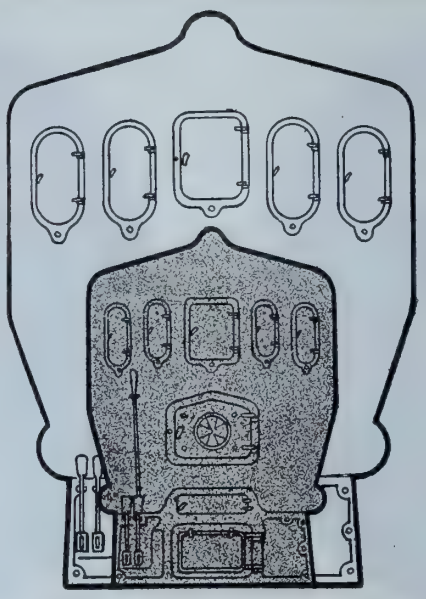


How To Put a Crimp Into That Auxiliary Bunk

By Booster Binx

Yes, bunk; that's what it is—just bunk. Sit down here while I tell you about what I ran into yesterday.

A neighbor of mine has a certain boiler, that is so hungry for coal, that he asked me to drop over and see if I couldn't do something to kill its appetite.

What do you think I found sitting side by side that boiler, but a big barrel like pipeless heater. He said "it was for auxiliary purposes."

"What do you mean by "auxiliary purposes?" says I. "For Spring and Fall use," he says, "when it's not cold enough to need the boiler."

"What's the matter with this old tea kettle of yours," says I, "can't you throttle it down?"

"Got to keep her running 20 miles an hour, or she stalls," says he.

"Come close," says I, "while I tell you something that will make you want to wrap your head up in a hot towel.

If you had brought one square sectional Burnham Boiler, you would have had **two** boilers in one.

A small one for Spring and Fall; and a large one for Winter.

The **two** boilers wouldn't have cost you a cent more than **this one** old tea kettle of yours.

You see, with a Burnham, you can run half of it at a time; or all of it, just as you like. You can do it, because the grates shake half at a time.

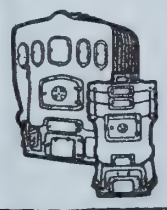
You can run your fire on the front half only, and have all the benefit of all that 3 times back and forth fire travel just the same as if you were running the whole boiler.

In a jiffy you can dump the dead ashes from the dead half, push over some live coals and start the entire thing going.

Why, man dear, you just blew in about $150. for that "auxiliary purpose," with which you could just as well have brought oal."

Of course, being my neighbor, I didn't rub it in—but by heck, sure did want to.

And while I think of it, drop around soon again; want to tell you about "The Sad Tale of a Flue Brush." It's so sad, it's funny.



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Vol. XIV. TORONTO, MAY 15, 1920 No. 10

Power Machinery Helps Build Business

O. Picard & Fils, John Street, Quebec, Keep Pace With Big Contracts by Using Modern Equipment—Sales Are Helped Through Display

O. PICARD AND FILS, John St., Quebec, have kept abreast of the times, and, by anticipating the needs of their customers and the opportunities of the day, have built up an extensive plumbing business through the adoption of modern equipment. In addition to this they have so altered their premises from time to time as to afford them an excellent display room, where every type of fixture carried, including baths, basins, closets, shelves, etc., may be viewed by the customer. This has paid them well, in real money, for the customer who can see what he is buying, while being told the merits of a given piece of plumbing or a fixture, is more likely to say: "I'll take that," than if the whole of the "cards" are not laid on the table. It has worked well, this plan of display.

Use a Special Room

In arranging the displays, J. M. Gaudry, the manager of the firm, finds that the use of a generously-sized room at the rear of the store entrance has worked out well. There is a big advantage in this. When buying a new bathtub, a basin, or a closet it may be, the customer is away from the disturbances that would present themselves when the door is constantly being opened at the entrance, and new customers entering, and others departing. Mr. Jones comes in.

"I would like to see a pedestal lavatory basin for my new barber shop."

"Yes, this way, please. We have just received a new pattern which will be worth your while to see. It is set up here where you may see it, and I will outline the advantages, particularly as it looks good to me as a fixture that will not only grace your shop but give you little trouble with its new style trap."

And thus, once begun, the sale of that fixture is developed, and not only has a profit been made that is well worth while, but the customer has been so well pleased that he will, in future, place his order here for both fixtures and repairs, or any accessories that he may need. Indeed, he has probably already been

The generously-sized display room for bathroom fittings, located at the rear of the store, where the customer is away from the disturbances caused by the constant opening and closing of the door at the entrance. The "setting" for the display has been carefully planned, comprising a color scheme of dark blue and sky blue, these colors blending nicely with the white enamel fixtures.

Shelving sections accommodate a large variety of gas fixtures, fittings, etc. A cabinet is shown in the picture. This contains screws, nuts, bolts, etc. Special drawers are provided for each article, and the work of salesmen or workmen is therefore facilitated, while the appearance of the store is greatly improved.

shown and sold some "extras" which he had no intention of buying, and all because he had the uninterrupted attention of the salesman.

Daintily Decorated

It is imperative that the "setting" for display of fixtures be carefully planned. The Pickard Company has chosen, as its color scheme, dark blue and sky blue. These shades blend nicely, and the setting for the pure white enameled fixtures is a good one. With a hard maple floor, and with ample display space—the showroom being 20 by 40 feet, all fixtures are shown to the best advantage, and sales are the more readily made

That the customer may be assured of a close scrutiny of the fixtures displayed, eight electric lamps afford a flood of bright electric lights. On a dull day, or toward dusk, these lights make the whole arrangement an attractive and pleasing one. All through, this show room is carefully kept, and displays are maintained with a minimum amount of care. It is a simple matter to replace a removed fixture that may have just been sold; a simple, matter, too, to keep all fixtures dusted from day to day. A little care, frequently, ensures a well-kept show-room all the time.

Fine Fixtures

Those who run away with the idea that plumbing does not require to be well displayed will be ready to think the matter over when viewing the displays of this firm as embodied in the accompanying photographs.

In the front section of the store sections of shelving accommodate a large variety of gas fixtures, fittings, and other small fixtures. Right in the centre of the store and to the front of the main office (located right in the centre of the store to the rear of the first division) is a small cabinet for containing screws, nuts, bolts, etc. In this location it is handy, and the workmen or the salesmen can readily secure the desired article. It makes for neatness in arrangements. Then, too, it serves to care for stock that might otherwise become very untidy, resulting in loss and confusion. Mr. Gaudry said that these arrangements were excellent and that all the fixtures were a great satisfaction.

In some of the sections electrical fittings are stocked. There are so many of these fittings that some such system is essential if one is to conserve stock and keep it in orderly manner. The effect of such a fine showing of fixtures on the prospective customer will be obvious to the reader.

Use Power Machinery

The Picard business has been conducted for many years, and with the demands made upon it has grown greatly. With changing conditions has come a demand for power machinery, and this has been installed as the demands required.

A Hall single pipe-cutting and threading machine has been in use for some time, this being capable of taking pipe up to eight inch diameter. In addition, a separate cutter of the same make for pipe up to 2 inch is used. A Duplex Nipple machine, also, is used, and this will make nipples up to two inch.

All this machinery is run through the adoption of electric power, and manual work is thus reduced to a minimum. The adoption of power machinery has enabled the firm to tackle any contract no matter what the size may be, and the results are highly satisfactory.

The shop is located in the warehouse to the rear of the store on the second floor. This is very satisfactory in that the men are away from any disturbing influences and may pursue their work uninterruptedly. It makes for better work and speedier completion of a given job to be so located.

How to Get Results

"We pay our men as much as possible," said Mr. Gaudry, to SANITARY ENGINEER, "and we have no trouble. It is all in having good men. The man who has caused any trouble is the man who has wasted time, and when there is pipe to be lifted, water to be shut off, etc., a helper can do this quite as well as a plumber. It pays to have a good helper and people do not mind paying for this."

In all from twenty-five to thirty men are employed, and Mr. Gaudry stated that he had been fortunate in getting a good foreman. "Our man is excellent."

(Continued on page 34)

Revisions in London Plumbing By-Law

Revised Schedule of By-laws as They Will Likely be Presented for Ratification—Number of Important Changes in Connection With Venting—London By-law Will Stand Even if New Ontario Regulations Are Passed

LONDON, Ont.—After having considered the plumbing by-laws for month, the special committee has submitted the following clauses to the council. A comparison between the original by-laws which appeared in the issue of SANITARY ENGINEER with the revised by-laws shows a number of important changes, especially in connection with the question of venting. There seems little doubt that the revised by-laws will be acceptable and will be passed. In this case, even if the proposed Ontario regulations receive the signature of the Lieutenant-Governor, and go into effect, they will not supersede the by-laws given below, as the statutes provide that where there are existing by-laws, they are to stand. The original City of London by-laws conformed very closely to the proposed Ontario regulations. The revised by-laws, as may be seen by comparison, differ considerably.

The new London by-laws are as follows:

BY-LAW TO SECURE THE SANITARY CONDITION OF BUILDINGS

Be it enacted by the Council of the Corporation of the City of London as follows:

Plumbing and Drains for Buildings

1. It shall be unlawful for any person or persons to do any work in connection with plumbing or drainage of any building within the City of London, unles sthe same shall conform with the following requirements:

Permits for Construction of Drainage, and Plumbing

2. Before proceeding to construct, reconstruct, alter or relay any portion of the drainage, ventilation of any hotel, warehouse, dwelling house or other building, the owner or his agent (in the case of agent his authority from owner must be produced in writing), desiring to construct the same shall file in the office of the Medical Officer of Health an application for a permit therefor, and such application shall be accompanied with a specification or abstract thereof in a blank form prescribed and supplied for this purpose, stating the nature of the work to be done, and giving the size, kind and weight of all pipes, traps and fittings, and a description of all closets and other fixtures, and also a plan thereof, showing the street and street numbers marked thereon and the drainage system, provided however, that necessary minor reports may be made to prevent loss or damage.

Scale of Plans

3. All plans must be legibly drawn in ink on heavy white paper or tracing linen or satisfactory blue prints, and on a scale of eight feet or four feet to an inch, and such scale plainly marked on plan.

Refusal of Permits When Plans Do Not Conform With City Requirements

4. If the Medical Officer of Health finds that the plan and specifications do not conform with this By-law, he shall not issue any permit, and it shall be unlawful to proceed with the work referred to in the application.

Granting Permits

5. A permit shall be granted or refused within two days from the time of filing the application, and (if granted), shall be valid for six months from the date of issue.

Alteration of Plan

6. After a plan or specification has once been approved no alteration or deviation from the same shall be allowed, except on a written application of the owner, or agent of the owner, and with the approval of the Medical Officer of Health, and excepting further that it be in conformity with the provisions of this by-law and shall not permit of additional fixtures.

Plumber, Etc., Not to Do Work Until Permit Obtained

7. No master plumber, plumber or tile drain layer, engaged by the owner of any building to construct, reconstruct, alter or relay any portion of the drainage, or ventilation thereof, shall do any work in connection with such construction, reconstruction alteration or relaying at or upon any such building until such master plumber, plumber or tile drain layer has satisfied himself that the owner has filed his application for a permit for such work, as required by this section, and has obtained a permit therefor as required by section 2 of this By-law, and the production of such permit from the Medical Officer of Health shall be sufficient evidence to the said master plumber, plumber or tile drain layer, of the application at the Department of Health having been properly made.

Hand-Hole Cleaning Trap

8. Between the building and the public sewer or drain there shall be placed a ventilation hand-hole cleaning-trap of approved description and make, placed inside the building or outside thereof.

9. Between the said trap, or from top of same, and the foot of the soil pipe there shall be connected with main house drain an inlet pipe, for the admission of fresh air, four inches in diameter, to be situated as far as possible from any opening into the house, and not less than 12 inches above finished grade, the mouth of which shall have a return bend or a cap giving an area of one-fourth more than the diameter of the inlet pipe.

Should cellar window or other opening be within, or adjoin verandah, the air inlet must be situated as remote as possible from the same, it must not terminate under closed verandah or under steps, but be brought out and finished in the open.

Septic Tanks

10. In case of a building or buildings to be built on a street which is not sewered, septic tanks or cesspools may be installed upon receiving a special permit from the Medical Officer of Health, and they shall be subject to conditions imposed by him from time to time.

Tile Pipes Underground

11. Tile pipe in underground drainage shall be of the best material and workmanship, and free from all blisters, cracks, flaws, or defects of any description.

Junctions

12. All changes in direction shall be made with "Y" junctions and curved bends; no right angle junctions will be allowed; all joints must be put together with the best portland cement, properly mixed and tempered, caulked with okum or stranded yarn, and finished flush with the edge of the pipe; the joints on the inside of the drain to be in all cases properly cleaned and finished so as to be perfectly free from all burrs; no drain shall be laid with a less grade than the following:

Drains 4 inches in diameter, a minimum grade of 1 foot in 40 feet.
Drains 6 inches in diameter, a minimum grade of 1 foot in 60 feet.
Drains 8 inches in diameter, a minimum grade of 1 foot in 80 feet.
Drains 10 inches in diameter, a minimum grade of 1 foot in 110 feet.
Drains 12 inches in diameter, a minimum grade of 1 foot in 140 feet.
Drains 15 inches in diameter, a minimum grade of 1 foot in 200 feet.
Drains 18 inches in diameter, a minimum grade of 1 foot in 250 feet.
Drains 24 inches in diameter, a minimum grade of 1 foot in 330 feet.

Tile Drain Pipes

13. Vitrified salt glazed earthenware drain pipe shall be equal in quality to those used for the private drain connection, as specified from time to time by the City Engineer for private drain connections. The pipe used for weeping or sub-soil drainage tiles shall be connected to a rain water leader drain on house side of trap; surface and floor drains must be trapped and have screwed brass plug.

Not to Connect With Weeping Tile

Waste pipes from sinks or a plumbing fixture of any size whatsoever shall, under no consideration, be connected to weeping tile under any building.

Must Connect on Sewer Side of Main Trap

14. All drains used for weeping and sub-soil drainage of any building must connect to main drain of building on sewer side of main trap and be so arranged that sewage will not pass or back into their trap.

Prepared Foundation

15. All earthenware drain outside a building laid on newly-made ground or very wet soil, shall be laid on a prepared foundation of 2-in. pine plank or 4-in. concrete. No built trap or mason's traps shall be used inside of any building. All traps on earthenware drains shall be vitrified salt glazed earthenware, and all traps to have hand-holes, and said hand-holes extended to the surface. No inverted joints of any kind will be allowed below any fixture.

Private Drains Laid by the Corporation

16. All private drains laid by the Corpora-

MAY BE LATER SET-BACK FOR NEW LONDON BY-LAW

London, Ont.—Chairman J. H. Saunders, of the Board of Health, states that the amended and to-be-amended plumbing by-law would probably receive its worst set-back at the hands of the Provincial Board of Health, to which it must be submitted before being made law in London.

"As chairman of the Board of Health," he stated, "I am bound to uphold the provincial plumbing by-law. I will not break that law."

At the same time Mr. Saunders feels that the responsibility of the measure will have to be left on the City Council and the provincial board.

He intimated that the local Board of Health would not presume to dictate to the Council, nor to disapprove of what they had approved of. If the amended measure is accepted by the Provincial Board of Health, the local health body would acquiesce.

Mr. Saunders pointed out that the provincial body was not prone to press absolute obedience to their by-laws so long as the public health was not menaced.

"For instance," Mr. Saunders pointed out, "the laws of the province forbid city sewage being discharged into rivers or streams. Yet we all know that this is being done in a small way here. The Provincial Board of Health could protest against this practice in London and there would be nothing to do but immediately install other methods of sewage disposal. However, the public health has not been affected to any appreciable extent, so nothing has been done."

Rain Water Leaders

17. All rain water leaders shall be trapped when connected with the drainage system of any building.

(a) Rainwater leaders shall not be used for soil or waste pipes, nor shall soil or waste pipes be used for rainwater leaders.

(b) When the conductors or roof leaders connect to drain inside of the main trap they shall be of the same material as a soil drain, and when passing up to roof within a building they shall be tested the same as the soil system with the water test.

(c) Where roof area of any building is greater than 1,500 square feet, plans showing proposed drainage thereof shall be submitted for approval to the Medical Officer of Health and the City Engineer.

All Drains of Cast-Iron

18. All drains used for sewage or waste water under any building shall be of cast iron, and of the kind and weight specified by this By-law.

Cleaning Out Screws on All Cast-Iron Drains

19. All cast-iron soil and waste pipe shall be rendered impervious to gas or liquid, by the joints being caulked with oakum and run with molten lead.

Alterations in a Building

20. When alterations are made in a building already drained by a tile drain, same may be re-used (provided they are satisfactory to the Medical Officer of Health).

If necessary to relay, it shall be relaid as provided in clause 18 of this By-law.

Fixtures Trapped and Connected

21. All plumbing fixtures put in for use in any building shall be properly trapped, vented and connected to a sewage drain, soil or waste pipe. Wooden laundry tubs and wooden sinks connected with house drains are permitted.

Refrigerator Wastes

22. Refrigerator wastes, if drained, shall terminate and discharge into an open sink, which is supplied with City water, or other method approved by the Medical Officer of Health.

Safe Waste, Etc., Not to Connect With Drain

23. No safe waste, range boiler, heating boiler, or cistern overflow shall be allowed to connect to any drain, except where a cistern is in clay land. Wherever safes are placed under fixtures the safe waste shall be run separately to a tapped sink or basin in the basement or cellar and be closed by a hinged brass flap valve of approved device, to prevent cellar air from rising through the pipe. Urinal platforms shall not be provided with safe wastes.

Drinking Fountains

24. Drinking fountains, manufactured for this purpose only, placed on wall or pedestal, and used for drinking only, may be connected to a rain water leader drain on building side of its trap, having a separate trap without vent; but if connected to a sewage drain they will be considered a plumbing fixture, and shall have a trap properly ventilated.

25. Each house or building must have its own separate soil pipe, four inches or larger, and drain, and such soil pipe shall be so placed as to enable it to be readily inspected without destruction to walls; and the plumber shall be responsible for the proper connection of his work with the system of drainage; and no two or more buildings shall have any drain in common until after the drain has reached the external wall of the building which it serves, except where there are two buildings on the one lot, one in rear of the other; if in that case there is no sewer or drain in the lane or alley to which the rear building can connect, and the rear building is not used as a dwelling-house or for human habitation, the drain of the front building may be extended to serve such rear building.

All Soil Pipes of Cast-Iron or Wrought Iron Galvanized

26. All soil pipes within the walls of any building shall be of cast-iron or wrought iron galvanized, and shall be continued at least three feet above any opening in the roof, which may be within fifteen feet of the same, and three feet above any opening into any adjoining building or extension when such building or extension is within fifteen feet of such pipe, and be left open so that the whole of the inside drainage may be thoroughly and constantly ventilated. All soil or vent pipes, when they pass through the roof, must be properly flashed and made water tight. That portion of metal resting on roof must be at least 20 inches square, and that portion extending up pipe, if used, must be 10 inches high.

Soil Pipes Must Be Increased One Size

27. No soil pipe of 4 inches in size shall receive or have connected to it the discharge of more than four floors of any apartments or flats building; each floor must not contain more than two W.C.'s four baths, two basins, two sinks, and two sets of laundry tubs. Main vent pipe for this or similar cases must be increased one size below roof, and pass out separately through roof.

Cast-Iron Pipes

28. No cast iron pipe used for soil pipe shall weigh less than the following per length of five feet:

2-inch	inside diameter	20 lbs.
3-inch	"	30 "
4-inch	"	45 "
5-inch	"	65 "
6-inch	"	75 "
7-inch	"	135 "
8-inch	"	167½ "
10-inch	"	225 "
12-inch	"	270 "

Pipes, Traps, Bends, Fittings of Good Quality

29. All pipes, traps, bends or fittings of cast iron shall be of good quality, and shall be free from flaws or defects, and shall be of uniform thickness.

Traps and Fittings to be Same Quality as Pipe

30. All traps and fittings shall be equal in quality and thickness to the pipe to which they are attached.

Garage Drains

31. Public garage drains must be of the same material as that required for house sewers when underground; and for soil and waste pipes, when above ground.

Drain in Garage

In public garages or other buildings where petroleum oils are used, all drains coming in contact with the same, including bell traps, sink and lavatory wastes, must pass to sewer separately from other drainage, and shall pass through a sump made according to the instructions of the Board of Health. The diameter of this sump shall be eighteen (18) inches if one or two machines are provided for; twenty-four (24) inches if there are more than two machines.

The material for vent pipe must be the same as required for house drains when below ground, and for soil and waste vents when above ground.

Galvanized Wrought Iron Pipe

32. No wrought iron pipe galvanized shall weigh less than the following per lineal foot:

1¼	in.	inside diameter	2.24	lbs.	per lineal ft.
1½	"	"	2.68	"	"
2	"	"	3.61	"	"
2½	"	"	5.74	"	"
3	"	"	7.54	"	"
3½	"	"	9.00	"	"
4	"	"	10.66	"	"
4½	"	"	12.34	"	"
5	"	"	14.50	"	"
6	"	"	18.76	"	"
7	"	"	23.27	"	"
8	"	"	28.18	"	"
9	"	"	33.70	"	"
10	"	"	40.00	"	"

Recessed and Threaded Drainage Fittings

All fittings used for soil or waste pipes in connection with wrought iron shall be extra heavy galvanized cast iron or malleable iron recessed and threaded drainage fittings. The burr formed by cutting the wrought iron pipe shall be carefully reamed out, and pipes left full bore.

Prohibited Fittings

33. No double hubs, straight crosses, double "T-Y's" shall be used in any soil or waste pipe below any fixture; no branch fitting other than a full "Y" or "Y" and 1-8 bend shall be used on any soil or waste pipe running in a horizontal direction.

34. When a system is to be installed for soil and waste pipe, any material in conformity with the by-law may be used.

Bath, Etc., Waste Not to Connect to Closet Bend

35. Waste pipes from bath and basin or other fixture will not be allowed to connect to water closet bend, but must have a separate fitting to receive the same.

Waste Pipe Sizes

36. No waste pipe from any plumbing fixture shall be less than inside diameter of its trap.

37. The size of traps for a given fixture shall never be less than the following inside diameter:

	Inches
Water closets	3
Slop sink	2
Pedestal urinal	2
Urinals	1½
Laundry tubs, 1 to 3 considered 1 fixture	1½
Kitchen sink	1½
Pantry	1½
Wash basin	1¼
Bath tubs	1½
Shower baths	2
Sitz bath	1½
Drinking fountain	1¼
Dental cuspidor	1¼

Traps and Vents

38. All drains and plumbing fixtures of every house or other buildings shall be provided with sufficient traps and vents to prevent gas from the sewer, drain, or waste pipes from escaping into any apartment; and each such fixture shall have its own trap with sufficient vent, said trap to be placed directly under, and as close as possible to fixture, excepting as provided in section 47 hereof.

One Trap to Fixture

39. No fixture shall drain through more than one trap (main trap excepted), the vent to be not less than one size smaller than trap, and no vent of less than one and one-quarter inches in diameter.

Vents to Increase at Roof

40. No trap vent pipe shall be less than three inches inside diameter where it passes through the roof or outside wall, and all vent pipes must continue to rise after leaving the trap, and pass out through the roof or connect with soil pipe, above the highest fixture. Traps for basins and sinks, when ½ "S" or "P" traps are used, may be vented by a continuous vent if centre of waste opening is not more than 12 inches from face of finished plaster or wall which they pass through or along measured, at right angles from face of wall—in all other cases location of trap vent will be governed by paragraph (c) of this clause.

Branch Vent Pipes

(a) No trap vent will be allowed to connect to another vent below a point level with top of fixture for which it is used.

Off a Trap or Lead Bend Under a Floor the Shortest Way

(b) A vent taken off a trap shall be extended in the shortest way to nearest suitable wall or partition, and then extended vertically as high as required above floor line.

Slip or Washer Joint Shall Be Allowed

(c) No slip or washer joint shall be allowed on sewer side of any trap or on any vent pipe. Trap vents in all cases (W.C.'s excepted), must be taken off discharge side of trap or waste pipe, as shown in diagram—crown venting will not be permitted. No wrought iron vents will be allowed below top of cellar floor, or to be buried under any earth.

Terminus

41. The rule for soil pipe terminus, as hereinbefore mentioned, shall govern said vent pipe.

Brass Pipe

42. No brass pipe used for waste or vent pipes shall be less than No. 19 Imperial gauge in thickness, and all brass pipe and fittings must be properly tapped and threaded.

Size of Closet Vents

43. Vents for water closet traps shall be 2 inches for a length of 25 feet, and for a greater length, 6 inches, provided, however, in buildings of not more than two stories in height it shall not be compulsory to ventilate the lead bend of a water closet. However, when two or more closets in a battery are connected to the one branch of the soil pipe, the loop system of ventilation shall be installed. In no case shall the two top storey water closets be required to be ventilated.

Vent Pipe Stacks Must Be Increased

44. Vent pipe stacks must be increased one size after passing through four stories, and keep on increasing one size for each succeeding four stories.

Of Brass, Lead, Cast-Iron, Etc.

45. Trap vents must be of brass, lead, cast-iron or galvanized wrought iron, with brass, galvanized, cast, malleable iron or brass fittings.

Size of Closet Vents

46. Closet vents, into which other vents are connected, shall be three inches in diameter. When the vent pipes combine, they must be increased in size.

Continued on page 36

Hints on Seasonable Advertising

The reproduction of some sample advertisements herewith will give some idea of the lines being advertised by others in the trade in all parts of Canada, and will impart some ideas or suggestions which others may incorporate in their local advertising.

A CLEAN-UP week was recently held in the city of Brantford, Ont., and the local plumbers made best use of the occasion to stir up enthusiasm for their line of business. Instead of the usual advertisements in small space, a half-page was taken in a local newspaper. Half of the space was used to announce in bold type the fact that it was clean-up week. An illustration showing a number of miniature persons pulling and shoving on a rake was used. Under the caption the following paragraph appeared:—

"Get out the rake and the shovel and look after the lawns and the backyard. Put out the accumulated rubbish of winter for removal by the garbage men. Paint and varnish and repair, adding to your home the new touch which spring demands. Then, when you're tired out, figure how much easier it would be for your wife if you bought her some electrical equipment which would enable her to have more time to enjoy life by ridding her work of drudgery. It's clean-up week. Get busy. Brantford can be made a beautiful city only if everybody sets out to have a prettier and cosier place than his neighbor. The town is what the people are. Do your share in making it Brantford the Beautiful."

The lower half of the space was occupied by advertisements of local plumbers, among which was the one reproduced herewith by Wm. Tipper & Son. This announcement makes "Seasonable Reminders" indicating that "an additional bathroom in the home is not a luxury but a necessity." It continues: "A lavatory supplied with hot and cold water installed in the sleeping room is a great convenience. A one-piece white enamelled sink is a necessity in the up-to-date sanitary kitchen. A good set of laundry tubs and an electric washer certainly will reduce the cares of home management." These are a number of well-constructed sentences, very much to the point, and such construction features advertisements that "have a punch."

No Excuse for an Untidy Kitchen...

when you have our sanitar plumbing and up-to-date kitche equipment, we would recommen the installation of an

Porcelain or Enamel Kitchen Sink . .

A thing of beauty and usefulnes and a joy forever to the cook o housewife.

Let us show you this Model Equipment at our Store

W. ADAIR

The Plumber

QUEEN ST., KINCARDINE

* * *

"NO EXCUSE FOR AN UNTIDY KITCHEN," says an advertisement by W. Adair, Kincardine, Ont., as shown herewith. This ad. makes best use of its space by the use of an illustration and of bold type in upper and lower case, to emphasize three lines which tell the story. Following the heading it continues: "When you have our sanitary plumbing and up-to-date equipment. We would recommend the installation of a porcelain or enamel kitchen sink. A thing of beauty and usefulness and a joy forever to the cook or housewife. Let us show you this model equipment at our store."

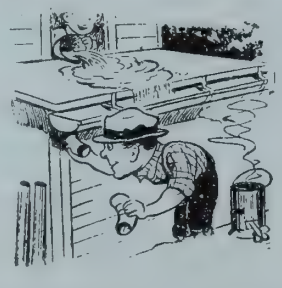
WHAT TO DO

when you have trouble with your plumbing, just telephone No. 203 You will get prompt service by the best workmen in the city, you will be satisfied with the way we work. Others have been.

J. C. Stewart

PLUMBING AND HEATING

Phone 203 **Weyburn, Sask.**



WE ARE RIGHT THERE

when it comes to anything in the way of tin and sheet metal work, we are equipped to give quick and lasting satisfaction. It makes no difference whether it is a large job or small, new work or repairing old, it will be done as it should be done, if we do the work.

MOFFATT & PARR

Sole Agents for "Hecla" Furnaces

Plumbers, Phone 531, Barrie

* * *

"WE DON'T PUT UP JOBS" is the introduction on an ad. by Yorkton Plumbing and Heating,

Seasonable Reminders:

An additional bathroom in the home is not a luxury; it is a necessity.

A lavatory supplied with hot and cold water installed in the sleeping room is a great convenience.

A one-piece white enamelled sink is a necessity in the up-to-date sanitary kitchen.

A good set of laundry tubs and a "Time Saver" Electric Washer certainly will reduce the cares of home management.

Let us consult with you and quote prices on any alterations or additions to your plumbing equipment. We can give you first class service.

Wm. Tipper & Son

PLUMBING HEATING LIGHTING

Dealers in Electric Chandeliers, Ranges, Heaters and Supplies of All Kinds.

45 DALHOUSIE STREET PHONE 281 NIGHT 1804

of Yorkton, Sask. Much the same style as in the Adair announcement is used in this ad. from the West. Continuing after the heading it says: "For future work when called upon to fix your roof, eavetrough, conductor pipe and water tanks or any kind of iron work, plumbing, etc.

"We are kept busy doing honest work and don't have to scheme for more. By the way, do you know that the rains will soon be here? Better have us look after your work and water tanks now before they arrive. We always carry an assortment of water tanks in stock. Yours for service and satisfaction."

This announcement seeks to discourage the too popular idea that the plumber seeks to make as much work out of a job as possible. Its second strong point is that it makes a definite suggestion that the rainy season will soon commence and that there is repair work to be done in advance. The giving of such suggestions makes the appeal more personal and invariably brings better results from local advertising than when generalities are indulged in.

* * *

"WE ARE RIGHT THERE," says the ad. of Moffatt & Parr, Barrie, Ont., as shown herewith. "When it comes to anything in the way of tin and sheet metal work," it continues. "We are equipped to give quick and lasting satisfaction. It makes no difference whether it is a large job or small, new work or repairing old, it will be done as it should be done, if we do the work."

This is a two-column advertisement which occupies slightly less space than the longer one-column ad. as shown by W. Adair.

* * *

"DO NOT EXPERIMENT WITH YOUR HEATING AND PLUMBING PROBLEMS," warns an announcement by McGrattan's, Assiniboia, Sask. No illustration is used in this ad., but the best use is made of good-sized space by employing bold face type of different sizes. The ad. makes much of an important point, namely, that there are few householders who have not had experience with plumbing jobs which were experimented with by the householder himself or an inexperienced mechanic and which, therefore, cost more finally than if the job had been done right in the first place. The ad. continues: "Have your work done by practical men. It pays. Come in and inspect our furnaces, boilers, etc. Also let us talk over your plumbing requirements."

* * *

"YOUR HEATING SYSTEM—HOW DOES IT BEHAVE?" asks J. C. Stewart, Weyburn, Sask., in a recent announcement. The name of the firm follows the introduction, and then continues as follows: "We offer you the benefit of —— heating service. It means scientific and systematic application of proved methods in the solution of heating problems. Have us look over your heating system and give you an estimate on one which will give lasting satisfaction."

Change Sewer Pipe Values for Customs

Bulletin Just Issued Quotes New Rates of Discount From List Prices for East and West on Sewer Pipe and Flue Lining

A NEW bulletin in regard to fixed values for duty on sewer pipe and flue linings imported from points in the United States, has been issued by the Department of Customs. The bulletin cancels order-in-council dated April 22, 1919, and substitutes bulletin No. 2101, quoting the following rates of discount to be deducted from the list prices shown on sewer pipe and flue lining.

Discounts From Price List "A" (Eastern)

Sizes	Standard Pipe	Standard Seconds
3 in. to 24 in.	67%	70%
27 in. and 30 in.	63%	68%
33 in. and 36 in.	60%	65%
Double Strength Pipe		
15 in.	63%	
18 in. to 24 in.	60%	
27 in. and 30 in.	58%	
33 in. and 36 in.	55%	
Stove pipe and fittings up to 24 in	67%	
Wall coping	67%	
Flue liners in mixed cars	67%	
Flue liners in straight cars	68%	

Eastern Price List "A"

Sewer Pipe Calibre	Price per ft.	Calibre	Price per ft.
3 in.	$0 30	15 in.	$1 80
4 in.	0 30	18 in.	2 50
5 in.	0 45	20 in.	3 00
6 in.	0 45	22 in.	4 00
8 in.	0 10	24 in.	4 50
9 in.	1 05	27 in.	6 50
10 in.	1 05	30 in.	7 20
12 in.	1 35	33 in.	9 00
		36 in.	10 25

Grease Traps with bottom covers—	Each
8 in.	$10 00
9 in.	15 00
12 in.	18 00
15 in.	24 00
18 in.	30 00

Stove pipe larger than 24-in. diameter take the same discount as standard pipe of corresponding size.

All pipe in 2½ ft. and 3 ft. lengths to take 3 per cent. less discount than above except 27 in. and over.

Round flue linings larger than 24 in. diameter 2 per cent. greater than above discounts on standard pipe of same size.

Discounts From Western Price List "B"

Sizes	Standard Pipe	Double Strength Pipe	Standard Seconds Pipe
4 in. to 12 in.	57%	....	62%
15 in. to 24 in.	57%	57%	62%
27 in.	55½%	56%	61%
30 in.	54½%	53%	60%
33 in.	57%	57½%	64%
36 in.	56%	58%	62½%
Flue Liners in mixed cars	....	52%	....
Do., in straight cars	....	55%	....

OIL MAY BE USED FOR FUEL IN ONTARIO PUBLIC BUILDINGS

Oil may become the fuel for heating all Ontario public buildings. The figures in the estimates of the Government show that the use of oil compares favorably with coal. Hon. Mr. Biggs states that the saving in favor of oil in one Government building had been equivalent to the firemen's salaries. He thought that record would improve when the attendants thoroughly understood oil-burning. Hon. Mr. Biggs said that he intended to have a competent engineer investigate the heating conditions at the Parliament Buildings.

	Outside Measure	Price per ft.
Fire clay flue linings (rd. cor.)	4½x 8½	$0 45
" " "	4½x13	0 60
" " "	4½x18	1 20
" " "	7½x 7½	0 45
" " "	8½x 8½	0 60
" " "	8½x13	0 90
" " "	8½x18	1 35
" " "	13 x13	1 15
" " "	13 x18	1 75
" " "	18 x18	2 25

Round flue linings, without sockets—

Inside Measure	Price Per Foot
6"	$0 45
7"	0 55
8"	0 70
9"	1 05
10"	1 05
12"	1 35
15"	1 80
18"	2 50
20"	3 00
22"	4 00
24"	4 50
27"	6 50
30"	7 20
33"	9 00
36"	10 25

NOTE.—Fire clay, stove pipe, round, with socket—same price per foot as round flue linings. Wall coping, 8" and 9", weight 11 lbs. per foot, 40c per lin. ft.; Wall coping, 12" and 13", weight 16 lbs. per foot, 60c per lin. ft.; wall coping, 18", weight 32 lbs. per foot, $1.20 per lin. ft.

CANCEL PREPAYMENT CLAUSE

Steps were about to be taken in protest of the action of United States railways in demanding the prepayment of freight to Canadian destinations in U. S. currency, when that clause was withdrawn. This section has now been rescinded and U. S. railways will allow reconsignment at the border to Canadian points, thus permitting payment being made for the Canadian haul in Canadian currency. This announcement precluded action on the part of Canadian coal dealers from raising the price of coal 50 cents a ton, the effect of which would have been felt in many other departments of the trade as well.

WESTERN PRICE LIST "B"—Standard Sewer Pipe

Inside Diameter	4"	6"	8"	10"	12"	15"	18"	20"	21"	24"	27"	30"	33"	36"	Flue Lining Size	Price Per ft.	Approx. Weight Per ft.
Straight pipe per linear foot	$ .25	$ .35	$ .50	$ .70	$ .90	$1.30	$1.70	$2.00	$2.30	$3.00	$4.50	$5.50	$7.00	$8.00	4½"x8½"	.30	13 lbs.
⅛ curves, each	1.00	1.40	2.00	2.80	3.60	5.20	6.80	8.00	9.20	12.00	...	...	...	...	4½"x13"	.45	21 lbs.
¼ curves and elbows, each	1.00	1.40	2.00	2.80	3.60	10.40	13.60	16.00	18.40	24.00	...	...	...	...	8½"x8½"	.40	19 lbs.
Traps, each	2.50	3.50	6.00	8.40	10.80	...	...	...	...	...	...	...	...	...	8½"x13"	.60	30 lbs.
*T and Y branches, 2' long, each	1.00	1.40	2.00	2.80	3.60	5.20	6.80	8.00	9.20	12.00	...	...	...	...	13"x13"	.75	37 lbs.
*T and Y branches, 2½' long, ea.	...	...	2.25	3.15	4.05	5.85	7.65	9.00	10.35	13.50	...	...	...	...	4½"x17½"	.75	26 lbs.
*Double T & Y brchs. 2' long, ea.	1.50	2.10	3.00	4.20	5.40	7.80	10.20	12.00	13.80	18.00	...	...	...	...	8½"x17½"	.80	40 lbs.
*Double T and Y branches, 2½' long, each	...	...	3.25	4.55	5.85	8.45	11.05	13.00	14.95	19.50	...	...	...	...	13"x17½"	1.00	51 lbs.
Increasers, decreasers, slants and slop hoppers, each	1.00	1.40	2.00	2.80	3.60	5.20	6.80	8.00	9.20	12.00	...	...	...	...	17½"x17½"	1.30	65 lbs.
Perforated pipe, per foot	.50	.70	.90	1.25	1.50	2.00	2.50	3.00	3.25	4.00	...	...	...	...	Openings in square flues		
Approx. weight lbs. per linear ft.	10	15	24	32	44	60	85	100	115	150	...	...	...	...	50% additional		

Double Strength Sewer Pipe

Inside Diameter	12"	15"	18"	20"	21"	24"	27"	30"	33"	36"
Straight pipe, per linear foot	$1.00	$1.50	$2.10	$2.50	$2.80	$3.60	$5.00	$6.00	$8.00	$9.00
⅛ curves, each	4.00	6.00	8.40	10.00	11.20	14.40	...	...	...	...
¼ curves and elbows, each	4.00	12.00	16.80	20.00	22.40	28.80	...	...	...	...
*T and Y branches, 2½ ft. long, each	4.50	6.75	9.45	11.25	12.60	16.20	...	...	...	...
*Double T and Y branches, 2½ ft. long, each	6.50	9.75	13.65	16.25	18.20	23.40	...	...	...	...
Approx. weight, lbs. per linear foot	50	72	105	125	140	180	...	...	...	...

*Branches in two, two and one-half foot lengths with inlets fifteen inches and larger add 50% to list price of branches.

SPECIALS

Gutter, split or channel pipe, per foot 75% of one foot of sewer pipe, same size and thickness.

Cistern tops, same price as two feet of sewer pipe, same size and thickness.

Slop hopper strainers, same price as 3 feet of sewer pipe.

Increasers have socket on small end.

Decreasers have socket on large end.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Montreal, Que.—M. A. Dube & Co. have sold out their plumbing business.

BUSINESS NOTES

Orillia, Ont.—A by-law granting certain concessions to the Glasscoat Sewer Pipe Co. was carried by a large majority.

OBITUARY

Moose Jaw, Sask.—George Brown, an employee of the City Waterworks Department, died recently. He was a veteran of the war.

Montreal. — Friends of Herbert A. Matley, of the Montreal staff of the Thos. Robertson Company, will learn with regret of the death of his father, W. A. Matley.

PERSONALS

Halifax, N. S.—John W. Bruce, of Toronto, organizer of the United Association of Journeymen Plumbers and Steam Fitters, was in Halifax recently, in regard to labor matters.

FIRE LOSSES

Walter H. Benson, plumber, Toronto, suffered loss by fire. The damage was largely covered by insurance.

NEW FIRMS

Cornwall, Ont. — Messrs. Bergeron Bros., who recently purchased the block formerly occupied by the late G. M. Smith, Marlborough Street, from Mr. Fabien Martell, will open a plumbing, tin-smithing and steamfitting business. George Bergeron was on the staff of Messrs. Hermiston & Comrie for twenty years. He is also well-known as a citizen, having represented the East Ward at the Town Council Board for six years and also sat one year as Deputy Reeve and was, as such, a member of the Counties' Council.

His brother, Mr. Joseph Bergeron, who will be associated with him, was also in the employ of Messrs. Hermiston & Comrie for some time but latterly has been employed as a steamfitter at the Canada Mill.

PROVIDES $1,500,000 FOR HOUSE BUILDERS

Windsor.—The city council has adopted the 1920 Housing Act of the Provincial Government, thereby releasing $1,000,000 for the construction of workingmen's homes in Windsor. It is expected the money will permit of the immediate construction of at least 300 houses.

OPEN MONTREAL OFFICE

Geo. W. Cole, Ltd., Toronto, have opened a new office in Montreal, P.Q., at 76 St. Gabriel Street, under the management of Louis H. Bacque, in order to be in closer touch with Montreal business.

George A. Young, with offices at 203 Scott block, Winnipeg, Man., has been appointed representative for the Prairie Provinces.

G. W. BLOOMFIELD,
Of Brantford, Ont., elected President of the newly formed Plumbing and Drainage Inspectors' Assn. of Ontario, at their recent inaugural meeting.

TENDERS

Toronto, Ont.—Tenders will be received till noon June 1st for plumbing and heating work in connection with the erection of a fire hall in Earlscourt. Plans are on file at the City Architect's Department.

Tenders are being called by the Board of Control of the City of Toronto for the installation of sanitary conveniences in a number of dwellings. Plans and information can be secured from the Medical Health Department.

CONTRACT AWARDED

Milton, Ont.—The Town Council has granted $48,000 for the erection of a new High School.

St. John, N.B.—The contract for the construction of the Fraser Memorial Hospital at Fredericton has been let to the George A. Fuller Company, of Montreal.

INCORPORATION

Brigden Brick & Tile Co., Ltd., has been incorporated with head office, in Brigden, Ont., to engage in the manufacturer of drain and sewer pipe, tiles, etc.

PRESIDENT BETHUNE HONORED

MONTREAL.—At the annual meeting of the St. Andrew's Curling Club, held at Montreal, Capt. Dan. A. Bethune, president of the Montreal Master Plumbers' Association, was chosen as president for the ensuing year. This mark of esteem is naturally appreciated by the genial president of the Master Plumbers, the St. Andrew's Curling Club having added, during the past year, no fewer than forty new members. With so enthusiastic a chief officer as is Capt. Bethune, himself an ardent thrower of the "stanes," there will doubtless be some "Trophy Avalanche" next winter, directed the way of St. Andrew's Curling Club.

GUELPH COUNCIL RATIFIES AGREEMENT

Guelph, Ont.—Following the reading of a report by City Engineer McArthur in regard to construction work at the local sewage disposal plant, the city council passed a by-law to execute the agreement between the city and the construction company. The engineers' report was very complete, outlining the whole situation, and indicating that the work of constructing tritus tanks and settling tanks at the sewage disposal plant would cost from $19,000 to $21,000.

BIG HOTEL PLANNED FOR VANCOUVER

Vancouver, B.C.—Another hotel is proposed for Vancouver. It will be a modern nine-storey structure, to be erected shortly by a Forth Worth, Texas, syndicate.

The structure will cover an area of 75 by 120 feet, will be nine storeys high, and will contain 166 bedrooms.

The cost of the structure will be in the neighborhood of $500,000. Architects for the building are Mr. Richard T. Perry of this city, and Mr. Raphael A. Nicolais of Fort Worth, Tex.

DAYLIGHT SAVING—YES AND NO

Brockville.—Brockville has adopted daylight saving for three months, commencing the first of June.

Chatham.—The city council has decided to dispense with the daylight saving by-law for the present season.

Cobourg.—The town council decided to introduce daylight saving time on May 17, to remain in effect until September 6, 1920.

Editorial Comment from Other Papers

Get Information at Peterboro's Expense

DEALING with the recommendation that the city engineer of Peterboro go to New Orleans to investigate a sewage pump of special design, the Peterboro "Review" comments as follows:

"The city's board of works will recommend that council agrees to the city engineer's going to New Orleans and Texas to learn all he can of the merits of a sewage pump in operation down there. The idea is that from such a visit the engineer may bring back information for guidance in the installation of this city's sewage disposal plant. In the past Mr. Parsons has usually been accompanied by the chairman of the Board of Works when on trips in this connection, and that such chairman, whoever he may be, or some other alderman shall do so on this occasion is the intention. It is contended that though the trip will be costly, the city will be repaid in the saving of thousands of dollars through efficiency and economy in the operation of our sewage disposal system. Of course, there is sound argument in that and it would be a pity, now that a commencement on the construction of this system is at last in sight, should its operation be found wanting in any detail for the sake of saving a few hundred dollars in gleaning information.

"But the peculiar feature of this proposed trip away down South is that the suggestion comes from Provincial Sanitary Engineer Dallyn, who as a rider to his letter, says that the type of pump used down in New Orleans has had no publicity in Canada, and we wonder if his object as Provincial Sanitary Inspector, is to assure that publicity at this city's expense. The Provincial Health Department has been pretty arbitrary with this city in regard to the sewage disposal system they would allow us to install, on the grounds that it must be such as they could endorse as quite up-to-date and lacking nothing in sanitary qualities. And one would think that if cognizant of this unique type of pump in operation so strongly recommended by Sanitary Inspector Dallyn that in the interest of sanitation in the Province under the supreme care of the Provincial Health Board they themselves would take such measures as would give them first hand all data connected with these southern plants for guidance in dealing with Ontario municipalities on the question of sewage disposal."

Questions Authority of Board of Health

J. Cooper, Liberal member for Welland, Ont., has filed the following questions in the legislature:

1. Has the Government, or any member of the Government instructed or authorized the Provincial Board of Health to make an investigation and report on the question of water supply from the Niagara river to municipalities on or adjacent to the Welland Canal?

2. Is the Government or any member of the Government aware that the Provincial Board of Health is making an effort to force or induce municipalities on and adjacent to the Welland Canal, to take water for domestic and other purposes from the Niagara river by a waterworks systems to be established under their supervision and in control?

3. On what instructions or by what authority is the Provincial Board of Health endeavoring to force or induce municipalities on and adjacent to the Welland Canal to take water from the Niagara river by a waterworks system to be established by them?

Suggests Licenses For Janitor Engineers

The following letter was submitted to the Toronto Globe and appeared in a recent issue:

Apropos of the bill before the Legislature to penalize the landlords of apartment houses for permitting the temperature of a tenanted room to fall below 68 F., the writer begs to raise the question whether education should not precede or at least accompany compulsion and punishment. He has had some recent experience in interviewing applicants for the position of Janitor-engineer, and in consequence is of the opinion that there are men carrying the certificate of a stationary engineer who have very limited expert knowledge of the heating problems that confront a janitor-engineer.

Some of them cannot give an inquirer much satisfaction on such questions as the advantages of the aspiration, plenum and exhaust methods of heating rooms, the variation in the thermal units radiated under different pressures of steam, the humidity requirements of living rooms or the quantity of water that should be evaporated into a given quantity of air at a given temperature, and humidity to obtain optimum sanitary conditions.

Problems continually arising in the living rooms are as technical and important as those of the boiler room. Courses of instruction should be provided for janitor-engineers, and in due time they should be required to prove their knowledge and skill if they are to be put or to remain in charge of the heating of large schools or large apartment houses.

Darling in N.Y. "Tribune."

HUNTING THE PROFITEER

EDITORIAL COMMENT

SAYS CONDITIONS ARE NORMAL FOR BUSY TIMES

THE importance of using sound judgment and keeping in full view conditions as they exist is outlined in an article by H. C. Atkins, president E. C. Atkins & Company, who points out that present conditions as to supply and demand and prices are really normal for busy times. He expresses himself further, as follows:

> "Similar conditions as to supply and demand in 1914 and 1915 would have been welcomed with open arms by everybody. Business in every line at present is good. The demand for goods is insistent. The market resembles the prosperous days of 1906 and 1907 without the danger of financial panic which followed over-extension of credits at that time.
>
> "Concerning present high prices: we have learned to regard that situation as normal for the times. Many chronic diseases are far from fatal. High prices are traceable to legitimate causes and are logical and necessary at the present time. They are no longer speculative but what one might term chronic. The further logic of the situation is that these high prices are going to stay high. The 'Wall Street Journal,' March 17, 1920, says:
>
> " 'The Industrial Outlook of the current year is encouraging. Nearly all branches of business have well-filled order books and are operating at as near capacity as physical conditions will permit. Industry as a whole is in a very strong position to go through a period of business expansion without seeking financial assistance from the outside.'
>
> "With the financial situation sound and the demand insistent we should go ahead in a business-like normal state of mind, with an abiding faith that the present conditions are sound fundamentally and will not change for the worse to endanger the prudent and careful business man. Carry your usual stock of goods firm in the belief that there are just as many people living, breathing and carrying on the ordinary pursuits as ever."

RAPID DEVELOPMENT OF CANADA'S EXPORT TRADE

DESPITE difficulties produced by an insufficiency of raw materials, labor troubles and other disturbances in Canadian industry directly connected with the readjustment to peace-time conditions, Canadian manufacturers have not only provided for the home market, but have kept enough in reserve to enable them to put up a stiff fight for the world's trade, now that export conditions have returned to a more normal state.

This issue of SANITARY ENGINEER contains editorial data indicating the strides Canada is making as an export country. Elsewhere it is shown that for the fiscal year ending March 31, Canada's trade has increased $165,980,266, with an increase in exports for the year of $23,048,292 as compared with the same period one year ago.

It is reported that a large number of firms, fully representative of the various branches of Canadian industry, are planning to reserve space at the Canadian Industries Exhibition to be held in London, England, next June. This exhibition will serve to put Canadian products before buyers from all parts of the world and will give the widest publicity to the lines which Canada is in position to develop for export.

WILL BE A FORMIDABLE COMPETITOR OF U.S. STEEL CORPORATION

MUCH interesting comment is appearing in United States papers concerning the formation of the British Empire Steel Corporation, merging as it does a number of the leading Canadian industries. The fact that the new corporation presents a potential competitive factor of the United States Steel Corporation does not seem to be comprehended by people of the United States, according to opinion expressed through their papers, though some there are which give full credit to the possibilities lying before such an enterprise in securing a large portion of the world's steel business. Those expressing this opinion are cognizant of the fact that the Canadian project is backed by the interests of both Canada as a colony and also those of the British Empire. It is thought to be significant that while the United States Department of Justice is taking action against the United States Steel Corporation on the grounds of it being a combine, Canadian and British

interests are inviting the utmost co-operation among steel, coal and iron ore interests to stimulate production. Securing, as it will, preferential treatment in the British markets of the world, the enterprise should soon be a formidable competitor of the United States Steel Corporation.

THE OUTLOOK FOR IRON AND STEEL

SPEAKING of the outlook for iron and steel, John A. Topping, chairman of Republic Iron & Steel Co., told the convention of the American Iron and Steel and Heavy Hardware Association that high prices are likely to remain while the present condition of demand exceeding supply exists. In view of expected growth in the shipbuilding industry, in the production of motor vehicles, and in the construction of buildings, railway equipment, etc., Mr. Topping sees justification for his opinion that prices cannot decline. He agrees that high prices may somewhat curtail buying, but states that this will not be the case to the same extent as if iron and steel stood alone on the peak of high prices or if the character of the demand was of a less necessitous character. By comparison, he states iron and steel prices are not high when thus considered.

CANADA'S COAL PROBLEM

RECURRING frequently of late have been veiled threats by American business men and politicians that coal supplies to Canada may be shut off should awaken this country to the need of developing home production. Canada is not deficient in coal. In fact, we have quantities estimated at one-sixth of the world's supply. But our known coal is nearly all bituminous, and it is located chiefly at the two extremities. Coal may be found in large quantities in the Hudson's Bay region.

Last year Canada bought $70,000,000 worth of coal from the United States, which is a considerable increase. At the same time, domestic production decreased from 14,435,000 tons in 1917 to 13,714,000 tons. The tonnage imported from the United States, 21,000,000, was approximately 61 per cent. of our consumption. This dependence seems unnecessary. Premier Stewart, of Alberta, declared recently his Government would try to get special rates on coal to Ontario. Last year 308 tons of Alberta coal were sold in this province, but the movement is practically impossible under present conditions. Yet the Alberta mines are closed six or seven months of the year, owing to lack of demand. Why should not the Government adopt the suggestion of buying an immense quantity of coal in the summer, and storing it for resale, thus keeping the mines equally busy throughout the year? It is useless, under the present cost of living, to expect the mass of consumers always to lay in coal in hot weather. Heads of families, earning a moderate wage, simply cannot do it. The management of the larger aspect of coal movement is becoming a Government problem. It is expected that briquettes of Alberta and Saskatchewan coal will be available in Winnipeg next winter at a price of about $9 a ton. The briquetting plant on which the Government is spending $400,000 will have a capacity of about 30,000 tons per annum, and 300 such plants would be required to satisfy full Western requirements. But if the demand for coal were sufficient, and the rates cut down—the railways being allowed an equivalent increase on luxuries, for instance—private capital might assist in the development.

The quantity of anthracite shipped from the East to Manitoba each year is a large addition to our import coal bill. Anthracite has qualities for domestic heating that perhaps cannot be found in lignite briquettes, but Alberta and Saskatchewan buildings heated with home coal are kept warm, and the problem is one of adapting heating apparatus for the use of soft coal. In any circumstances, the present anthracite fields in the United States will be exhausted in another generation or two, and then this country's immense supplies of soft coal will give it equal footing with the United States. We may as well take time now to have this coal production business set right.

REGISTERED SUPERIORITY PURITY DURABLE AS THE PYRAMIDS TRADE MARK

Plumbers who use the System Make Satisfied

"Yes, Mr. Plumber! We are perfectly satisfied with the job you did for us. Thanks for your interest in calling to look over the work."

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

Follow-up Inspection and Permanent Customers

It is always a source of satisfaction to the man who has paid for a plumbing installation to know that his plumber really has his interest at heart enough to take time to step in or phone to find out if the work done is giving perfect satisfaction.

In these days of big business there may be a tendency to overlook these little courtesies, but plumbers who adopt the policy of "follow-up inspection" of plumbing installations later cash in on the good-will gained thereby.

Some plumbers, when business is too pressing to afford a personal call, make use of the telephone, finding it a valuable temporary substitute. Personal contact carries more weight and is, therefore, preferable.

Are you using the Port Hope Sanitary "For the Home" and "Roughing-in" Booklets?

Mfg. Company, Limited

Halifax Office:
McCURDY BUILDING, HOLLIS ST.

Head Office:
ROYAL BANK BLDG., TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

Plumbers Out for Membership Increase

Interest Centres Around Drive in Montreal for New Blood and Results Very Encouraging—Hope to Reach Century Mark

MONTREAL.—Out for new members with a will and with a real determination to "go over the top," the Montreal Master Plumbers are hoping to reach their objective in piling up a membership—a real active membership at that, of at least one hundred. That they will succeed in this is almost certain, that is, if the efforts already put forth speak for much. At the last regular meeting there were "thirteen luckies" brought into the fold, and there they will receive, at each subsequent meeting, a warm welcome, that real friendly kind which only members of the craft can extend.

One of the features of this drive—and a mighty important and unique one at that—is that there are both French-speaking and English-speaking recruits, and they are coming along with a new interest in the very important work which must, of necessity, command the attention of sanitary and heating engineers to-day. There is an excellent spirit all around, and under the wise and solid guidance of President Dan A. Bethune there is nothing that the boys cannot do.

Is a Great Benefit

The advantages of association work are many. They are vital. It is felt that in only such ways the best good can accrue to members of the craft. It was felt that it is the men who are, to-day, giving of themselves to the betterment of the craft, that are getting along well themselves.

Matters of vital and decided interest are now engaging the attention of the Montreal master plumbers, and there is an excellent spirit within and without the association.

Merger of Pipe Machinery Manufacturers

BRANTFORD.—The John Hall & Sons, Limited, pipe manufacturers, of this city, have merged with the Williams Tool Corporation of Erie, the largest manufacturers of pipe machinery in the United States, with a capital of one million dollars. John R. Hall & Sons, Limited, are the largest manufacturers of pipe machines in Canada.

The local plant will be known as the Hall Plant of the Williams Tool Corporation. No radical change will be made in the management.

Leslie S. Hall, president and general manager, will be vice-president of the American company, taking an executive position between the two plants. A. R. Hall will be manager of the local plant, and E. L. Williams in charge of the office. E. W .Hall is retiring as secretary, and treasurer of the company, and E. L. Hall will no doubt continue with the new corporation on his return from England.

A large factory is under consideration, but it is too early to give definite plans.

Compensation Act Amendments

A number of important amendments to the Ontario Workmen's Compensation Act, as formerly outlined in SANITARY ENGINEER, have now been made ready for presentation to the Ontario Legislature.

Some of the more radical proposals are:

1. An increase from 55 per cent to 75 per cent. in the compensation rate.

2. A minimum rate of $12.50 per week.

3. Increased allowances for widows and children.

4. Making all increases retroactive to 1st January, 1915.

These amendments will mean a direct increase of 36.3 per cent. in the present compensation, and will necessitate a great increase in the rate of levy on the industries now in operation, which will be obliged under the retroactive feature of the bill to provide not merely for their own pensions but for the trail of pensions left behind by munition works and other industries which have done business from time to time since 1915, but have now been wound up.

Housing Scarcity Endangers Health

Moose Jaw, Sask.—The seriousness of the housing problem in Moose Jaw, not merely in regard to the excess of the demand over the available supply, but also in regard to the relation of the problem to the public health, was the subject of a large proportion of the last report of the Medical Health Officer.

The report points out that housing conditions in the city are among the causes of the increasing death rate of tuberculosis in the city. The demand is increasing and many buildings have been put into partial repair and used after several years of neglect. During the year 1919, the report points out, only forty-one new dwellings were erected in the city, and one house converted into a tenement block of eighteen apartments, making a total of fifty-nine new dwellings throughout the year, whereas the city's marriage rate alone would demand at least a hundred and fifty new dwellings.

The medical health officer adds that tuberculosis continues to record a higher mortality in the city than the aggregate of all other infectious diseases, and that there can be little hope for the improvement of this condition while housing conditions in Moose Jaw remain as they are.

Another Industrial Congress

Calgary, Alta.—Continuing the work commenced at the Industrial Congress held in Alberta last year, a similar congress is to be held this year on a more comprehensive scale in conjunction with the Province of British Columbia. The congress will be attended this year by members of the Canadian Manufacturers' Association, whose annual meeting will be held in the West immediately following the congress sessions. Delegates to the congress will assemble at Medicine Hat on June 2 and will proceed to Lethbridge, Calgary, Edmonton, Vancouver and Victoria between June 2 and 11. At each stop visits will be paid to local industries; addresses and exhibits will also be a feature at the larger centres. The aim of the congress is to assist in the development of the great natural resources of the Western Provinces and to assist in creating a better understanding of the country's problems, as between the East and the West.

St. John Firms in Merger

St. John, N. B.—Some local concerns are to be effected in the steel merger proposed under the name of the British Empire Steel Corporation. A meeting of the directors of the Maritime Nail Co. was held last week, at which it was decided to recommend to the stockholders the acceptance of the terms. The James Pender Co. will be included in the merger also. It is likely that S. E. Elkin, M.P., will head the local end of the organization. Speaking of the merger yesterday, Mr. Elkin said: "The promoters of the merger have big plans and the working of those plans will be very beneficial to St. John."

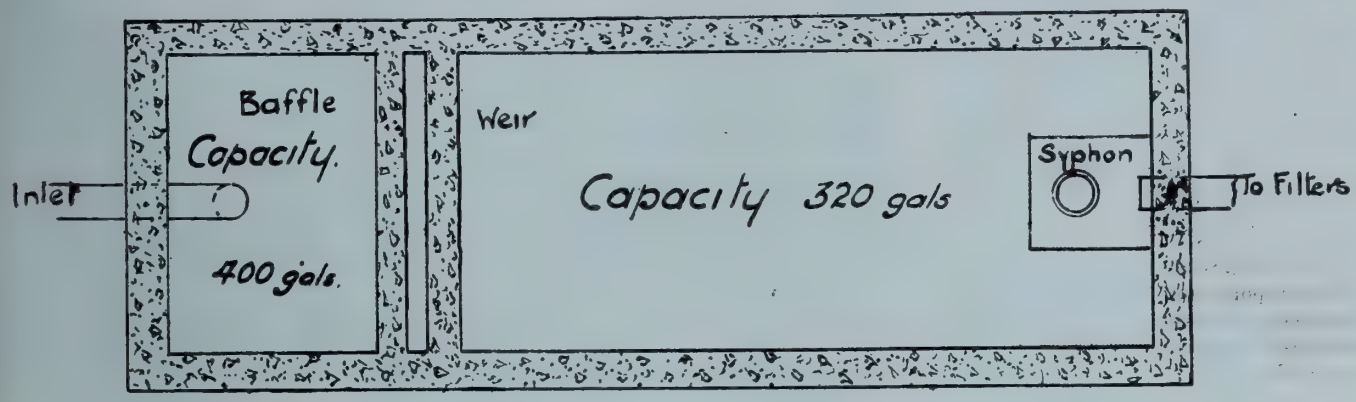
American Tinplate in Europe

Dealing with the offers of American tinplates on British and European markets "The Ironmonger" states that such offers have upset the merchant trade in England even though the terms asked are not such as to render them serious competitors of the Welsh manufacturers. American demands of irrevocable credit have been considerably modified. Continuing it states: "With the exception of a few large contracts the American tinplates have been sold in small quantities. Our merchants have not bought to the same extent as Continental houses owing to doubts regarding delivery and to a dislike of selling terms."

PORT PERRY, Ont.—A. M. Roberts of the Carnegie Hardware has gone to Otterville to start business as a tinsmith and plumber.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied



Plan. Fig. 13.

Article No. 8 of the Series—Illustration No. 13

FIG. 13 shows plan, longitudinal section and cross-section of a double chamber septic tank designed for six persons, in flat ground, where the outlet is difficult to obtain.

The submerged sewage inlet enters the first chamber which is constructed much deeper than usual, the water sealed connection between the two tanks is obtained by constructing a concrete baffle wall connected to the sides and roof of the tank and running the full width of same as shown in Fig. 12, which appeared in May 1 issue.

The sewage passes over the division wall and is carried up to the height required, by calculation, for the storage capacity of both tanks and acts as a weir running the full width of the tank as shown in the plan.

The overflow, automatic syphon and ventilator are constructed as previously described and inspection covers for easy access should be provided in the reinforced concrete roof.

ACTIVE BUILDING IN OTTAWA

Ottawa, Ont.—Well over half a million dollars worth of building is going on in Ottawa at the present time, or will come under the course of construction in the very near future. This amount of building is reflected by the building permits issued for the first four months of 1920, which to date had an estimated valuation of $568,395.

The month of April alone produced in estimated valuations, a greater total than for the first three months of the year combined. In April, permits to the value of $329,110 were issued, as against $239,285 for the first three months of this year.

SANITARY INSPECTORS HOLD ANNUAL DINNER

Winnipeg, Man.—The annual dinner of the Manitoba branch of the Sanitary Inspectors' Association of Canada was held recently. Dr. A. J. Douglas, medical health officer, presided in the absence of Ald. E. Robinson, chairman of the civic health committee. Interesting speeches were made in the course of a lengthy toast list, which included the following: "The Army and Navy," proposed by Major Paull, quartermaster at Tuxedo, and acknowledged by Dr. J. H. Leeming, city bacteriologist, and H. B. Weston; "The Sanitary Inspectors' Association," proposed by R. Buckingham, and acknowledged by E. W. J. Hague; and "The City of Winnipeg," proposed by J. H. Pearson, and acknowledged by Ald. George Fisher.

QUESTIONS AND ANSWERS

Question.—Would you please advise me as to the best covering to use in order to keep water pipes from freezing in the extreme weather. Is there a covering used instead of hair felt as this, to my mind, is very bulky when wrapped around water pipes?

Answer.—The best covering to keep pipes from freezing is that made of cork. Air cell covering may also be used if it is covered in turn with a painted canvas jacket.

We are assuming that it is water supply pipes that you wish to cover. The principal difficulty with covering upon such pipes is that the condensation of the moisture contained in the air causes the covering upon the pipe to rot. Cork covering is not so subject to destruction by moisture.

Montreal Masters Adopt Wage Agreement

Schedule Agreed Upon at Special Meeting Held to Consider Report of Committee—Wages Paid Will Depend Upon Proficiency

MONTREAL. — Montreal Master Plumbers have been working for some time on a plan to solve the wage problem as it applies to the employee. Many conferences were held from time to time and the work of selecting data was left in the hands of a committee comprised of James Ballantyne, chairman; P. C. Ogilvie; D. A. Bethune, president of the Montreal Master Plumbers' Association; H. Lavigueur; Alex. Charette; Telesphore Latourelle and J. E. Walsh, secretary.

A meeting was held on April 23rd, at which a report was brought in by this committee, and after due consideration its adoption was recommended, and the same unanimously approved.

Three Wage Rates

President Dan. A. Bethune occupied the chair for this special meeting and a large number of plumbers were present, representing both the English and French sections. While this meeting was called for the afternoon, the attendance was very representative and the interest taken in the proceedings of the meeting were decidedly satisfactory.

After due consideration of the report presented, it was moved by Alex. Charette, and seconded by James Griffin, that the agreement with the National Catholic Workers' Syndicate be approved, and ratified, same to be signed by accredited representatives.

In the simplest terms, the new agreement recognizes the open shop and is not in favor of sympathetic strike. A strike, as a matter of fact, will be the very last resort of members of the National Catholic Workers' Syndicate. Wages, according to the employee's proficiency, are graded, the maximum rate being 75 cents per hour.

What This Union Is

A word of explanation regarding the working of this union is in order. As the name implies the active membership is taken out by Roman Catholics and they are banded together in this union to observe fair working schedules with their employers. While the active members are under the direction of their accredited leader, Protestants may join, and in speaking with a member of the committee on the working of the newly-formed syndicate, he informed SANITARY ENGINEER that they would welcome a union formed with a Protestant membership, to be formed for co-operative betterment of working and other conditions.

There are four distinct features to the objects of the new union and these are as follows:

1. Recognition of the open shop.
2. Lockouts and strikes positively prohibited.
3. Classification of employees or men, the maximum wage per hour being 75 cents.
4. Hours—From November to May, 49-50 hours per week; from May to November, 44 hours per wek.

With the exception of a limited amount of objection to the new proposal, a large percentage of the membership agreed to the finding of the committee and this finding was eventually adopted unanimously.

Steel Merger is Completed

New Corporation Stands Second Only to U.S. Steel Corporation—Capitalized at Five Hundred Million Dollars—Number of Important Companies Merged

Montreal.—The new British Empire Steel Corporation, the largest consolidation in the British Empire, and second only to the United States Steel Corporation, has now come into definite existence, as an imperial organization. Capitalized at $500,000,000, this Canadian consolidation of steel, coal and transportation companies, associating the iron and coal deposits of the Atlantic seaboard of the Dominion with the steel-making experience and financial resources of Great Britain, is now an accomplished fact, according to Colonel W. Grant Morden.

Included in the consolidation are the following: Dominion Steel Corporation and its subsidiaries; Nova Scotia Steel and Coal Co., Ltd., and its subsidiaries; Canada Steamship Line, Ltd., and its subsidiaries; Canada Foundries and Forgings, Ltd., and its subsidiaries; Maritime Nail Co. and its subsidiaries; Collingwood Shipbuilding Company, Ltd.; Port Arthur Shipbuilding Company, Ltd.; Halifax Shipyards, Ltd.; Davies Shipbuilding and Repairing Company, Ltd.

RECORD IN TORONTO BUILDING FOR APRIL

Another month's record in building permits, issued in Toronto, was reached for April, the total value of these amounting to $2,138,025, as compared with $1,620,966 last year. This is a higher figure than in any previous April. Judged by value, dwellings stand first in the various classes of buildings, with an approximate value of $1,000,000 for 255 houses.

BONUS SCHEME FOR PLUMBERS

A recent issue of the Monthly Service Bulletin of the National Trade Extension Bureau contains, among other things, an "Outline of Profit-Sharing or Bonus Scheme for Plumbing and Heating Business." The plan, in brief, involves setting aside a general fund not to exceed 10 per cent. of the total net profits on each job, contract or sale, to be distributed in the proper proportions at yearly periods. A portion of this fund would go towards a sick fund which would be apportioned annually, prorated according to the total amount of the fund and sick time of the employee, not to exceed full time. If the fund is sufficiently large full time might be paid the employee for his time lost owing to illness.

FUTURE PLANS OF TRADE EXTENSION BUREAU

As the result of action taken at a recent meeting of the board of directors of the U. S. National Trade Extension Bureau, the bureau will undertake the work of the Bureau of Standardization, heretofore conducted by the National Association of Master Plumbers and a number of other organizations. In order to finance the bureau during the coming year it is proposed to divide the country into zones and appoint a leading manufacturer in each zone to assume the responsibility of getting in touch with every manufacturer and jobber located in that zone. The actual work of soliciting subscriptions will be in the hands of committee made up equally of master steam fitters, master plumbers and jobbers.

The work of the bureau is of interest to the craft in Canada insofar as steps are being taken to extend the work of the bureau into this country.

KINGSTON PLUMBERS BUSY

Kingston, Ont.—Local plumbers will be busy for some time in consequence of the vigilance of the sanitary inspector.

In a recent report submitted to the Board of Health by Sanitary Inspector Carson, a number of shops were shown to be improperly equipped with sanitary conveniences. Out of 140 places inspected, 104 were not right and the owners and proprietors were notified to comply with the by-law governing such cases. A question that arose for further consideration was what action, if any, should be taken where stores and shops in which persons were employed had no conveniences. In some of the best property there was evidence of neglect because the owners were well able to comply with the health laws.

New Form Protects Contractor

Saskatchewan Association Adopts New Form of Contract, Making Installations the Contractor's Property Until All Payments Are Made—Plumbers Have Lost Heavily From Indefinite Contracts and Experience With Lien Laws

MENTION was made in a recent address delivered by Neil Beaton, of Beaton & Brady, heating and sanitary engineers, of Saskatoon, Sask., before the Saskatchewan Association Convention, of a contract form which has been adopted by the organization for use by the craft in contracting work. In a recent issue of SANITARY ENGINEER. the address given by Mr. Beaton was quoted. It was pointed out that the practice of entering into agreements without taking the precaution of first ascertaining the financial status of the other party, was very prevalent and that therefore many bills were uncollected. He pointed out that practically every plumber had experience with the lien laws or the experience of being unable to collect the last payment which is really the profit.

Herewith is reproduced a copy of the first sheet of the agreement as drawn up and endorsed by the association for use as a contract form covering any plumbing work. Referring to the form, Mr. Beaton states: "I may say that the chief and outstanding feature is the fact that it leaves title and ownership of plumbing fixtures, pipes, radiators, boilers, etc., in the possession of the contractor until paid for, with the right to possess and remove same, to sell same, either at auction or private sale, to satisfy his claim in whole or in part, and this agreement constitutes a claim in the nature of a lien note which may be registered as Schedule A."

In Schedule B, the agreement takes care of the labor at a stated sum, for which a lien may be filed under the Mechanics Lien Act. We believe that with this agreement the difficulty of collecting the last payment will be overcome.

Following the first sheet as shown herewith is a Schedule A, being a list of the goods and chattels referred to in the agreement. A column is provided for the number of articles or measurements thereof; the usual name of article; and a more exact description such as any special trade name, manufacturers' name, size, finish, nature of metal, etc. Under the columns set aside for these points on the second page is a section for description of "The Premises referred to in the agreement." A space for signature for identification by the owner and the contractor is provided.

Page three is Schedule B, being any special terms and specifications of work referred to in the contract with a space for signature for identification by the owner and contractor. The fourth page provides space for the affidavit with a statement that the agrement was entered into not for the purpose of protecting the goods and chattels mentioned therein against creditors of the buyer. The form is as follows:

SASKATOON, SASKATCHEWAN, ... 19....

Memorandum of Agreement made in duplicate on the above date

BETWEEN:

....

of Saskatoon, in the Province of Saskatchewan, hereinafter called the "Contractor,"

—and—

....

of ..... in the Province of .....
hereinafter called the "Owner,"

WITNESSETH that in consideration of the respective covenants herein contained, it is agreed between the parties hereto as follows:—

1. The Contractor agrees to sell to the Owner the goods and chattels more particularly set forth in Schedule "A" hereto (signed by the parties hereto for identification) and to deliver same to the premises set forth in said Schedule "A" at and for the total price or sum for all said goods and chattels of

....Dollars, ($.....) payable as follows, namely,

it being further agreed that all payments overdue are to bear interest at the rate of ..... per cent. per annum until paid.

2. The Owner agrees to buy and pay for said goods and chat-tels from the Contractor at the aforesaid price and terms.

3. It is also agreed that the title, ownership, and right to possession of said goods and chattels shall remain at the Owner's risk as to fire or other destruction or damages in the Contractor until the said purchase price or any note given relative thereto or any order given relative to payment thereof, or any judgment recovered for same or any part thereof, is fully paid, with interest; also that should the Owner make default in payment of any instalment of the purchase price hereinbefore provided (should the purchase price be payable in instalments) then any succeeding instalments shall forthwith at once become due and payable without any declaration to that effect by the Contractor notwithstanding any deferred dates of payment above provided and the total amount of said purchase price unpaid shall forthwith bear interest at aforesaid rate from the date of such default; also that in the case of such default and before or after judgment or execution may have been obtained by the Contractor relative to such purchase price, the Contractor may take possession of the said goods and chattels or any of same and may at the Contractor's sole and absolute discretion either hold same or any of same until said purchase price and interest and costs herein provided for be paid in full or may sell said goods and chattels or any of same at public or private sale; also that in the event of such holding, the Owner will further pay all the Contractor's or his agent's costs of taking possession and of removal and of storing said goods and chattels before Owner shall have right to possession of any of said goods and chattels; also that in event of such sale Owner shall pay all Contractor's or his agent's costs of taking possession and of removal and of storing and of sale and of commission at the rate of ten per cent. of the sale price and said costs shall be deducted from the sale price as a first charge thereon and the net balance, if any, shall be applied in reduction of said purchase price; also that notwithstanding such taking possession, or holding, or sale, the Contractor shall during same or thereafter have the right to proceed against the Owner by way of suit, judgment or otherwise and recover, and the Owner hereby agrees to pay the balance then still unpaid hereunder; also that the entering of suit or the recovering of judgment by the Contractor against the Owner relative to said purchase price or any part thereof shall not merge or waive the rights of the ownership or the rights of possession of the Contractor in said goods and chattels as created hereby; also that for the purpose of such taking possession or removal the Contractor may enter upon asid premises or elsewhere wherever said goods and chattels may be found without any notice and without hindrance from the Owner and without being in any way liable for any damage that may be caused to said premises or to said goods and cha ttels in such taking possession or removal and shall be under no obligation to repair or rebuild any damaged property and for the p urposes aforesaid the Contractor may use force if necessary in

entering or leaving said premises and may sever and disconnect said goods and chattels or any of same from anything to which they may be affixed or connected and may use any force necessary for that purpose, but the contractor agrees to cause a minimum of damage in such taking possession and removal; also that in effecting or attempting to effect such sale the Contractor shall be under no obligation to realize the full value of said goods and chattels and shall be under obligation only to accept the best bid offered according to the terms of sale and the Contractor may at the Contractor's discretion bid at such sale or fix an upset price and may sell said goods and chattels or any of same either en bloc, or in lots or as separate pieces in the Contractor's discretion; also the Owner hereby specifically waives all statutory requirements relative to such taking possession or holding or sale as contained in the Lien Notes Act or otherwise; also it is hereby distinctly agreed and declared by the Owner and by the Contractor that notwithstanding that said goods and chattels may hereafter become affixed to any land, or realty or building, that same are intended to and shall remain chattels so long as any of said purchase price, interest or costs remain unpaid but that immediately said purchase price, interest and costs be paid, said goods and chattels, if so affixed, shall be deemed to be part of the realty to which they are affixed.

4. It is agreed that should any unpaid vendor of said goods and chattels or any of them to the Contractor, cause any Mechanics' Lien relative thereto to be registered against said premises that the Owner may withhold payment of any instalment or part of said purchase price, sufficient to cover said lien pending removal thereof—but may so do only in the event of the Owner not being in default according to the above terms.

4a. It is agreed that said goods and chattels shall be delivered to the Owner or to anyone nominated by him at or on Lot in Block in the City of Saskatoon in the Province of Saskatchewan, according to registered plan number as the work relative to which said goods and chattels are ordered progresses on said property, and that where less than the whole amount of said goods and chattels is delivered at any one time the registration of this lien agreement shall be deemed to cover only the portion of said goods and chattels actually delivered up to the date of such registration and that the value of said goods and chattels so actually delivered shall be deemed to be the proper proportion of the total purchase price, and that any subsequent registration of this agreement shall be deemed to cover only the goods and chattels actually delivered from the date of the last prior registration to the time of such subsequent registration, and that the value of such goods covered by said subsequent registration shall be calculated as aforesaid.

5. It is further agreed between the parties hereto as follows:—

A. The Owner hereby employs the Contractor either by himself or by his servants or agents and the Contractor agrees to install and erect the said goods and chattels in said premises in a good and workmanlike manner on the following terms as to price and payment for such work; namely,

(a) At and for the sum of $.....payable as follows:—

B. It is agreed that the Owner may in the event of any Mechanics' Liens being registered against said premises by persons employed by the Contractor exercise the usual statutory rights as to withholding payment to cover said liens.

6. It is agreed that the terms and specifications (if any) as to said work relative to said installation and erection set forth in Schedule B hereto (signed by the parties hereto for identification), shall be deemed part of this contract as to said work and shall be read and construed as forming part hereof.

7. It is further agreed that throughout this contract if same be signed by more than one person as Owner that all covenants herein contained shall be deemed to be joint as well as several on the part of the Owner and that the singular or plural or masculine or feminine shall be deemed to be its correlative as the context or the parties hereto may require.

8. And it is further agreed that any cause of action arising relative to either the purchase price of said goods and chattels or relative to said work shall be deemed to have arisen in the City of Saskatoon in the Province of Saskatchewan and may be entered and tried accordingly, subject, however, to any statutory provisions to the contrary.

IN WITNESS WHEREOF the parties hereto have hereunto executed this agreement by their respective hands and seals, the day and year first above written.

WITNESS as to the signature of the Contractor

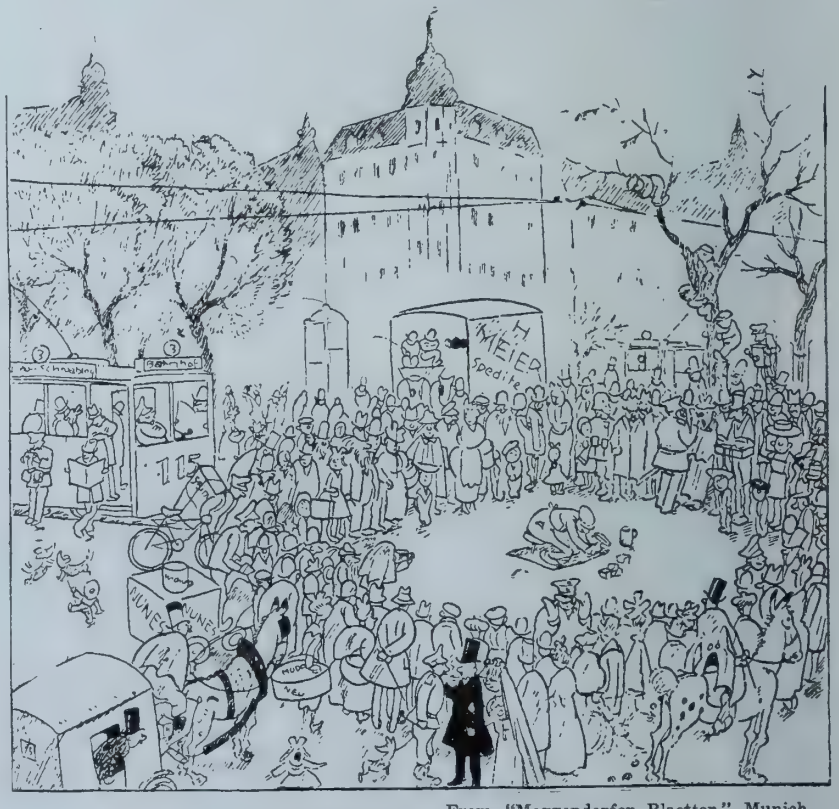
WITNESS as to the signature of the Owner.

German Steel in Britain

The fact that German steel manufacturers are in the British market and have actually made deliveries, has created quite a stir in the trade according to a report in "The Ironmonger." Continuing, it states that it had been believed that disturbed conditions in Germany would put German manufacturers out of the market for some time, but now a quantity of German steel, not less than 10,000 tons, has been sold for delivery by May. "Despite revolutionary conditions in Germany manufacturers have kept to their contracts. The business has been confined to relatively few firms in this country, the material being purchased largely for export, although limited quantities are for consumption in Britain."

New Suit Against U.S. Steel Corporation

A despatch from Washington says that a new suit against the United States Steel Corporation will be instituted by the Government, it is expected, in an effort to have new evidence presented bearing upon the charge of the Government that the United States Steel Corporation is an illegal combination in restraint of trade.



From "Meggendorfer Blaetter," Munich.

Somebody At Work

Large Increase in April Building Totals

Extensive Revival of Activity in Construction Throughout the Dominion—Winnipeg Leads—Montreal, Toronto and Sherbrooke Also Over the Million Mark

BUILDING on a broad scale has opened up in Canadian cities, and this condition is reflected in the reports of building permits for the month of April. The value of permits issued for the forty-one cities throughout the Dominion during the past month is $16,085,649, an increase of more than $9,000,000 over the total for the corresponding month a year ago. While the high costs of materials tend to swell the totals it is quite evident that there has been an extensive revival. Permits issued to date during the present year far surpass in value the totals for the first four months of the year 1919, standing at $32,380,718 as compared with $13,160,440 for the corresponding period a year ago, or an increase of $19,220,278. The unfavorable conditions in regard to materials have, it is understood, held up many building programmes, otherwise this total would have been much larger.

The Western cities have been particularly active during the past month, the value of permits being $4,806,895 as compared with $1,307,715 last year. The totals of the twenty-five Eastern cities stood at $11,278,754 as against $5,411,862 a year ago. In the majority of cases the totals for each individual city exceed the returns for last year, the exceptions to this rule being a few of the smaller cities. Montreal is the outstanding city of the East and leads with permits totalling $2,858,165 as compared with $446,470 a year ago. Sherbrooke is also in the throes of a building revival, permits for this city reaching beyond the million mark at $1,242,350. This report is the more gratifying when it is considered that permits for April of last year totalled only $131,300. While Toronto has given over the first place in the East to Montreal, she reports permits to the value of $2,137,908 as against $1,620,996 a year ago. Toronto's total for the year to date stands at $7,132,753, as against Montreal's $4,417,651. The cities of Halifax, St. John, Hamilton, Ottawa, Windsor and London also report satisfactory increases for the month.

In the West Winnipeg reports permits to the value of $2,901,300, placing that city at the top of the list for the month. This was largely made up by the T. Eaton mail-order building of the estimated value of $2,500,000

Among the more important constructions undertaken during the past month are the following: St. John, General Public Hospital, Nurses' Home, $173,000; Standard Bank, St. John's Branch, $25,000; Montreal, C.P.R. Railway Shops, $520,700; Allen's Palace Theatre, $235,000; United American Co., theatre, $125,000; Congoleum Co., factory, $105,000; Sherbrooke, Connecticut Cotton Mills Co., $1,110,000; J H. Bryant, bottler, $30,000; Sherbrooke Machinery Co., $26,000, Three Rivers, thirty-five new buildings averaging $3,000, $105,000; Westmount, church extension, $100,000; Chatham, Ont., mercantile building, $45,000; Hamilton, Canadian Cottons Ltd., $375,000; Kingston, Allen's theatre, $115,000; Sunday school hall, $30,000; London, Bank of Montreal, $15,000; H. J. Jones Sons, Ltd., factory, $15,000; St. Catharines, Dominion Macaroni factory, $45,000; L. E. McKinnon, residence and greenhouse, $23,000; Windsor, Loew's Theatre, $200,000; Calgary, warehouse, $130,000; Edmonton, telephone exchange, $125,000; stores, $10,000; St. Boniface, battery warehouse, $20,000; Winnipeg, mail-order building, T. Eaton & Co., $2,500,000; Prince Albert, extension to penitentiary, $200,000; Regina, Wood, Vallance Co., warehouse, $210,000; Fairbanks-Morse, warehouse, $80,000; New Westminster, Imperial Oil construction, $24,000; Vancouver, club stores, $60,000; talc plant for B.C. Silica and Talc Co., $20,000; Almonds Ltd., ice cream factory, $20,000.

BUILDING PERMITS ISSUED IN APRIL

	Apr., 1920	Apr., 1919	Change	4 Mos., 1920	4 Mos., 1919	Change
Eastern Cities.						
Maritimes—						
Halifax	$ 438,385	$ 363,735	+$ 74,650	$ 1,043,845	$1,008,053	+$ 35,792
Moncton	144,040	740,450	— 596,410	250,715	815,650	— 564,450
St. John	257,950	.....	+ 257,950	282,450	36,000	+ 246,450
Sydney	85,900	60,375	+ 25,525	140,395	114,870	+ 25,525
Quebec—						
Montreal	2,858,165	446,470	+ 2,411,695	4,417,651	886,572	+ 3,531,079
Quebec	253,480	270,125	— 16,645	917,564	440,317	+ 477,247
Sherbrooke	1,242,350	131,300	+ 1,111,050	1,350,475	243,100	+ 1,107,375
Three Rivers	186,910	40,680	+ 146,230	427,085	83,580	+ 343,505
Westmount	155,415	58,229	+ 97,186	276,215	72,854	+ 203,361
Ontario—						
Chatham	124819	7,125	+ 117,694	164,819	26,210	+ 138,609
Fort William	43,385	6,325	+ 37,060	74,035	13,775	+ 60,260
Hamilton	779,500	483,310	+ 296,190	1,445,050	1,076,570	+ 368,480
Kingston	196,315	204,595	— 8,280	232,500	226,709	+ 5,791
Kitchener	160,770	58,405	+ 102,365	501,660	182,545	+ 319,115
London	211,510	137,000	+ 74,570	384,080	254,845	+ 129,235
Ottawa	334,610	109,920	+ 224,690	573,585	414,310	+ 159,275
Port Arthur	9,255	35,771	— 26,576	25,071	44,638	— 19,567
St. Catharines	128,000	82,282	+ 45,718	209,755	142,022	+ 67,733
Stratford	83,590	9,223	+ 74,367	141,453	19,338	+ 122,115
St. Thomas	18,670	69,725	— 51,055	37,755	90,550	— 52,795
Toronto	2,137,908	1,620,996	+ 516,912	7,132,753	3,528,116	+ 3,604,637
Welland	31,915	61,925	— 30,010	55,365	116,280	— 60,915
Windsor	833,605	119,440	+ 714,165	2,250,850	305,765	+ 1,945,085
Woodstock	24,157	10,231	+ 13,926	63,028	14,381	+ 48,647
York Township	538,160	284,225	+ 253,925	1,200,300	681,525	+ 518,775
Total 256 cities	$11,278,754	$5,411,862	+$5,866,892	$23,598,454	$10,838,575	+$12,759,897
Western Cities.						
Alberta—						
Calgary	$ 317,800	$ 343,000	—$ 25,200	$ 809,000	$ 603,900	+$ 205,100
Edmonton	218,300	64,825	+ 153,475	970,700	38,235	+ 932,465
Lethbridge	7,260	15,920	— 8,660	34,420	46,430	— 11,959
Manitoba—						
Brandon	1,050	4,375	— 3,325	12,770	30,175	— 17,405
St. Boniface	34,290	27,000	+ 7,290	86,040	33,150	+ 52,890
Winnipeg	2,901,300	239,600	+ 2,661,700	3,667,600	402,350	+ 3,265,250
Saskatchewan—						
Moose Jaw	227,480	44,215	+ 183,265	268,355	74,140	+ 194,215
N. Battleford	1,125	16,150	— 15,025	3,825	16,650	— 12,825
Prince Albert	215,210	18,700	+ 196,510	262,435	45,165	+ 217,270
Regina	438,275	187,480	+ 250,795	948,975	274,880	+ 674,095
Saskatoon	69,075	111,365	— 42,290	109,250	170,885	— 61,635
Weyburn	7,850	770	+ 7,080	17,580	2,570	+ 15,010
Yorkton	2,900	200	+ 2,700	2,900	200	+ 2,700
British Columbia—						
N. Westminster	33,900	14,200	+ 19,700	160,315	51,975	+ 108,340
Vancouver	283,585	206,84	+ 76,745	1,162,1.8	469,860	+ 692,318
Victoria	47,495	13,075	+ 34,420	265,861	61,300	+ 204,561
Total 16 W. cities	$ 4,806,895	$1,307,715	+$3,499,180	$ 8,782,264	$ 2,321,865	+$ 6,460,399
Total 41 cities	$16,085,649	$6,719,577	+$9,366,072	$32,380,718	$13,160,440	+$19,220,278

Says Good Ventilation Makes for Efficiency

Dr. G. S. Nasmith Says Proper Temperature and Ventilation Increase Workers' Efficiency

PROPER attention to temperature and ventilation in factories and business houses as a means of securing greater efficiency among those employed in such places was advocated by Dr. George S. Nasmith, C.M.G., D.Sc., in a recent address on "Industrial Physiology." Dr. Nasmith pointed out that while many employers were taking an interest in this subject from altruistic motives, it was worthy of careful investigation if only as a purely business proposition. With proper temperature and ventilation, production was materially increased and the general efficiency of the worker greatly enhanced. As an instance he cited the result of one experiment in which it was found that in a certain factory a reduction of the temperature from 75 to 68 degrees, added 15 per cent. to the output.

The speaker explained that industrial physology went even deeper than industrial hygiene. The latter, he said, concerned chiefly the health of the workers, while industrial physiology sought to go beyond that and to eliminate all agencies tending to impair health. He remarked that in America there were 670 odd industries in which poisonous gases were prevalent, while in 70 or more industries the manufacturing processes caused large quantities of dust, which was an active agency in producing tuberculosis or other pulmonary diseases.

Proper Ventilation

The comparatively new subject of "Industrial Physiology," Dr. Nasmith stated owed its origin largely to the investigations carried on by the British Munitions Scientific Research Board. During the war, when the demand for munitions was urgent, it was found, he said, that lengthening the worker's hours and working seven days a week instead of increasing the output actually brought a reduction.

Dr. Nasmith reviewed experiments, which, he said, had revolutionized the existing conceptions of right methods of ventilation. Heat and humidity had been found to be chief factors affecting health. The ideal system of ventilation, he believed, was one in which fresh, dry air, cooled to a proper temperature was admitted at a number of points in the ceiling of a room and that the foul air drawn off at several points in the floor.

By this plan there was produced a blanket of air continuously descending and carry away from the breathing lines all bacteria.

Insurance Should Increase With Higher Stock Values

Stock Values Have Increased 50% to 100% in Past Five Years—Protection Should be Equally Increased—As Important as Self-Protection

IF A fire should break out in your store to-day and your stock were ruined either by flames or water, how would you be fixed for insurance? No doubt you have insurance placed on your stock; perhaps you have carried the same insurance for years and feel smug with contentment, so far as the possibility of fire with its ruinous consequences are concerned. Premiums have been paid promptly on the $5,000, $10,000, or $20,000, or more, worth of insurance that you have been carrying; the rest you leave in the hands of a merciful Providence.

But—

Providence, however, usually helps those who help themselves. Have you overlooked the fact that, during the last four or five years, your stock has increased in value from 50 to 100 per cent.? Did you ever sit down to figure out what it would cost to replace the stock you are carrying to-day, and then to compare that figure with the amount of insurance you are carrying on that stock? It might be time very well spent and it might, in addition, bring you very sharply to time with regard to insurance. Many merchants may have forgotten that their protection against fire has stood still while the value of their stock has been going up by leaps and bounds.

Stock Protection as Important as Self Protection

It is just as important to the welfare of your business that your stock be protected as that you, yourself, should be protected both by life insurance and a salary from your business. Many of the leading financial men in big firms, or the heads of big concerns are increasing their business life assurance to protect their business against the possibility of shock should they suddenly die. Such a shock is inevitable when the directing head of a great institution is suddenly taken off. Every merchant should give his own business the same protection. All good merchants do. Every merchant knows that his stock to-day is almost twice as valuable as it was before the war and that it would cost him that much more to replace it. You always figure, of course, the fire will never come nearer you than next door. But it may. How are you fixed for such an eventuality? This is a reminder to the man who has not attended to insurance matters.

U. S. STEEL CORP. HAS LARGE UNFILLED TONNAGE

New York.—The United States Steel Corporation announces that unfilled orders for the month ending April 30 totalled 10,359,747 tons, a gain of 467,672 tons over the pervious month.

Unfilled orders for the month ending March 31 aggregated 9,892,075 tons.

The total of unfilled orders was brought up to the highest point since August, 1917, when the unfilled tonnage was slightly more than 10,400,000.

EDMONTON PARALYZED BY REMOVAL OF INTAKE CAP

Edmonton.—Through the removal of a cap on the intake pipe at the waterworks pumphouse without first seeing that the intake valves at the river were shut off, the pump-house pit was flooded recently to a depth of more than fifteen feet. As a result the city of Edmonton was paralyzed. There were no street cars, lights or water, and, in addition, all utilities were without power and water. The authorities used the fire department pump engines to fill the sedimentation station, and with this completed water was supplied the powerhouse to get the engines there running."

K. N. FORBES GOES TO WINNIPEG

St. John, N. B.—Kenneth N. Forbes, who has been local manager for the Canadian Fairbanks-Morse Co. for the past five years, has been transferred to Winnipeg, where he will manage the office of his company. Mr. Forbes has been held in high esteem by his associates here and by the citizens in general. His successor is Watson J. Hill, who has been with the Fairbanks-Morse for sixteen years.

WINNIPEG APPROPRIATION FOR WATERWORKS EXTENSION

Winnipeg.—Indicating the extent of capital expenditures for 1920, Ald. F. O. Fowler, chairman of the Civic Finance Committee, states that the city will borrow funds to complete the following works:

Sewers, $50,000; water works extensions, $330,000; water services and meters, $45,000.

Favor Chlorination of Hull System

Expert Gives Figures of Mortality Reduction by Chlorination of Water—Over 1,100 Plants in United States Use Chlorination Alone

OTTAWA.—In the case of the Quebec Board of Health vs. City of Hull, recent evidence submitted by Wm. J. Orchard, of New York, favored the chlorination of the water. Mr. Orchard gave some interesting information concerning the results of chlorination of water systems in the United States.

In the course of his evidence Mr. Orchard said he had been connected with water questions for over ten years, both as regards laboratory work and installation of plants. Chlorination is his specialty, and he said he is also competent to give an opinion on filtration.

Chlorination of water had been the leading factor in reducing the death rate from typhoid fever from 25 per 100,000 to 12 per 100,000. Chlorine in connection with water supplies originated in England in 1905, when the Metropolitan Board of Works, on the recommendation of Prof. A. C. Hueston, their chief chemist, adopted the method.

"Chlorine in sufficient quantities, properly used, absolutely kills all bacilli; filtration only gets rid of approximately 95 per cent," he said. Over 1,100 plants in the United States use chlorination alone, and 350 use both filtration and chlorination. None use filtration only. The operating expenses of chlorination is from 50 cents to $3 per million gallons, and filtration costs from $15 to $25 for the same amount of water.

Mr. James O. Meadows, consulting engineer, Montreal Water Company, in his evidence, said he was in favor of filtration, but owned that chlorination was a necessary adjunct to the process. "I believe one cannot be too careful, and that all water should be chlorinated and filtrated," he said.

In answer to a question, witness said: "I do not think chlorination is a complete treatment in itself for impurities."

"Most authorities," said witness, "believe in filtration and chlorination combined, and advise the double treatment in preference to chlorination alone."

In reply to Mr. Foran, K.C., Mr. Meadows said: "I do not know any plants in big cities, which trust to filtration alone." In connection with the Aylmer filtration plant Mr. Meadows said chlorine was used to make "assurance doubly sure."

DELEGATES TO CONVENTION

Montreal.—At the monthly meeting of the Montreal Master Plumbers, held in the Builders' Exchange, Drummond Building, appointments were made of delegates to attend the forthcoming convention of Domestic Sanitary and Heating Engineers, being held in Toronto on June 8, 9, 10. The delegataes are: President, D. A. Bethune; H. Lavigueur, provincial vice-president; J. E. Walsh, chairman of price list committee; Telesphore Latourelle, past president of the Montreal Association: John Watson, chairman audit committee; L. Charette, chairman of the board of trustee and a past president.

It will be seen that Montreal representation is to be a very strong one. Without question they will be able to carry to the Toronto convention a great deal of support in connection with important questions which will arise for discussion. Last year's convention in Montreal served to make an important point in the history of the trade throughout Canada. The discussions at that time were very interesting and were closely followed by numbers of the craft from various parts of Canada. With the various efforts that have been put forth under the direction of Dominion President Frank R. Maxwell, of Toronto, and with the better spirit developed, there is no doubt that the Montreal delegates will be warmly received and well looked after. That they will carry with them to Toronto a great many helpful and constructive ideas is a foregone conclusion. In all members of the delegation just appointed the Dominion officers will find material on which they can count for executive work during the progress of the convention, and, what is more important still, after the session has closed. And with a good representation from both French and English speaking sections of the Montreal Association there is an opportunity for development of that co-operative spirit so desirable, and which has worked so splendidly of late in the Montreal association.

MONTREAL CITY BUYS NEW FLUSHERS

Montreal.—Motor flushers and cleaners for the city of Montreal have been purchased by the Administrative Commission. These were purchased from the Maple Leaf Mfg. Co. in Montreal at a price of $8,790 each. Contract for these flushers is expected to be completed by the end of June.

Montreal.—The Serbian Consul at Montreal has moved offices from 35 St. Nicholas Street to 395 Mountain Street Capt. V. Seferavitch, the consul-general for the kingdom of the Serbs. Croats, and Slovenes, intends making a visit to Belgrade on official business.

THE BUSINESS OUTLOOK

Writing of the Business Outlook, THE FINANCIAL POST of recent date said:

"There has been no time since the outbreak of the war in the Summer of 1914 that the business outlook has been more uncertain or more puzzling than it is to-day, although, of course, the apprehension regarding national safety has been removed. The situation is absolutely unprecedented. The upward movement of prices was in the first place the result of demand for commodities to be destroyed and reduced man-power to produce them and it was accompanied by financial inflation by practically all important world nations. It has been continued since the signing of the armistice by a demand for luxuries and comforts, encouraged by relief felt at the end of the war and sustained by accumulated savings, while production has declined under the general relaxation and temporary impotency of the usual incentives. The peace celebration, in fact, has taken on the semblance to a protracted spree, but there are indications that the effects of the armistice joy draught are wearing off and that the public ear is becoming less attentive to the jazz of pleasure and extravagance.

"Some time ago, prior to the recent definite action, the banks sounded a note of warning when they advised their customers to curtail their borrowings as far as possible, so as to be prepared for developments that might otherwise find them in an awkward position. Conservative wholesale houses have been giving similar advice to the trade in suggesting that stocks be kept low and collections checked up. That these warnings and the conditions which justify them are not unappreciated is indicated by the reports that in the commercial community there is now a tendency to reduce stocks to a minimum. This can only be interpreted to indicate that business is sensing a situation in which further advances are not confidently expected.

"Altogether there does not appear to be any need for serious apprehension if conditions are faced in a serious way. There is not that over-production which has always accompanied great financial panics in the past. For this reason it would seem that if there is a period of depression as an accompaniment of the process of deflation it will be short-lived because of the needs at home and abroad for food-stuffs and clothing and other necessities of life."

Justifies Freight Rates Increase

Information Supplied "Sanitary Engineer" by D. B. Hanna, President of Canadian National Railways, Shows Relation Between Operating Costs and Revenue Which Justifies Higher Rates on Freight

AS a result of endeavors to secure definite information as to the facts which justify increased freight rates, SANITARY ENGINEER has been provided with the following information dealing with operating costs, revenue, etc., by D. B. Hanna, president of the Canadian National Railways.

"In trying to establish when the high cost of living began to affect the operation of Canadian railways," says Mr. Hanna, "I came across the interesting fact that away back in 1875 the railways of Canada on the average got more for each ton of freight transported than they have received in any year since then, up to and including the year ended June 30, 1918, which is the last year for which the Government statistics for all Canadian lines are available.

"Beyond any doubt, the average distance the freight was hauled in 1875 was less than in 1918, as in 1875 there was no transcontinental line. Canada in all had 4,804 miles in 1875. The cost of running a train one mile was about 90 cents. We find that in 1875, on the average, a locomotive moved only 5,786 tons of freight and 5,296 passengers, whereas in 1906 the average locomotive moved 19,773 tons and 9,549 passengers. When this information is coupled with the facts that the average earnings per ton carried showed a decline, whereas the earnings per freight train mile showed a steady move upwards, a pretty good indication is obtained that the advances in methods of operating were also being carried on during this period.

"By 1907 the cost of running a train one mile had advanced to $1.249, or an increase of 57 per cent. over the average cost for the years 1890 to 1899 inclusive.

"From 1907 to 1918, in the face of the increases in the cost of labor and every known commodity the railways year by year, up to and including 1917, were able to practically offset increases in expenses by economies of operation, and with an average revenue per ton per mile that declined, were able to generally increase the net earnings per mile.

"A table showing the very low average return the railways got for moving a ton of freight one mile during the period from 1907 to 1918 indicates a decline from .815 in 1907 to .736 in 1918.

"During this period (1907 to 1918) the freight density, which is the term used for the number of tons hauled one mile per mile of line, increased from 518,485 tons in 1907 to 798,093 tons in 1918.

"A general idea of the magnitude of the railway development may be obtained from noting that the operating expenses of the railways increased from a total of $146,738,214 in 1907 to a total of $273,955,436 in 1918.

"Total operating expenses per mile of line increased by $2,425, viz.: from $4.621 to $7.046, or 52½ per cent. during that period.

"The average compensation of the individual railway employee increased from $473.50 in 1907 to $1,061.46 in 1918, or 124 per cent.

"The cost of fuel, which is the largest single item of material, increased from $2.69 to $5.17 per ton, or 92 per cent.

"It should here be pointed out that these increases in expenses do not include the very much heavier expenses which were laid on the railways in Canada in the latter half of 1918, and in the year 1919 by reason of adopting the McAdoo scale of wage increases.

"From 1907 to 1917 Canadian railways collectively were able generally to increase their net earnings per mile of line even though absorbing 14,982 miles of railway, but expenses mounted too rapidly to enable this to be done in 1918. For the year ended June 30, 1918, the total net earnings as compared with the previous year fell from $87,880,842 to $56,264,714, decreasing the net per mile from $2,276.46 to $1,447.17, due to an increase in operating expenses over 1917 of more than $51,000,000. Had the estimated value of the first freight (and passenger) increase for an entire year been added to the gross of 1917, it would have produced an increase of only about $28,000,000, showing how inadequate was the relief granted to the railways at that time. The estimates of the McAdoo Award increases and attendant expenses are in the neighborhood of $77,000,000 and against this the railways have been allowed the additional freight increase which was estimated to produce approximately $43,000,000, so that the two increases together fall short by about $57,000,000 of re-establishing the relation between gross and expenses that existed in the year ended June 30, 1917, and it must be remembered that, due to the falling off in traffic, the increased rates have not produced as much additional revenue as was estimated."

Variation in Metal Prices During The Past 20 Years

London, Eng.—An interesting and instructive chart has been compiled showing the prices on the first day of each month during the past 20 years (1900 to 1919, inclusive) of spelter, standard copper G. M. tin, soft lead without silver, and Scotch and Cleveland iron.

In 1914 spelter prices ranged from $180.06 to $104.02; in 1915 they touched $559.65, but were also as low as $136.26; in 1916 they ranged from $535.32 to $194.66; in 1917, from $284.69 to $206.83; in 1918, from $272.52 to $243.33, and in 1919, from $284.69 to $167.89—all per ton of 2,240 pounds. For standard copper, the highest price per ton occurred in 1916, namely, $744.57; in 1917 the maximum was $683.74; in 1918, $596.15, and in 1919, $581.55. In 1906 the highest price was $532.88, and in 1907, $545.05; the lowest maximum price, $277.39, as well as the lowest minimum, $219.60, occurred in 1902.

G. M. tin touched $1,941.73 per ton in 1918, and $1,677.72 in 1919, and was lowest at $474.48 in 1901. Soft lead reached its highest, $222.64 in 1919, and its lowest, $48.67, in 1902. Scotch iron prices are given in the chart from 1900 to 1903 and Cleveland iron thereafter; taking the two together the highest price per ton was recorded in 1919 at $38.93, and the lowest, $10.14 in 1904.

POWER MACHINERY HELPS BUILD BUSINESS

(Continued from page 14)

Work is figured on a percentage basis. It costs 15 per cent. to do business, Mr. Gaudry, and 20 per cent. is usually added to the cost of work. People say: "I want a good job;" we go ahead and do it, charge them what it is worth, and often save them money.

Electrical Work, Too

Considerable electrical work is done, much electrical wiring being required. This is really "confidence work" as Mr. Gaudry puts it. That is to say, parties wanting such work carried out for them have learned that the work done by the firm is dependable. As a consequence the contract for a piece of wiring is given and the work executed. This means that the several men engaged are supposed to go ahead and do their best work, seeing that connections and all wiring is carefully executed.

In arrangements for the caring of stock, care is taken to have this grouped where it will be readily available. Fittings, as already described, are in the front, that is, in the store. Back of the show room heavy fittings have a cosy and convenient location. In the shop, on the second floor, sheet metals, plates, wire, tubes, and many kinds of heavy fittings are stocked, and in all, two stories are mostly devoted to a heavy and comprehensive stock of cast iron pipe, fittings, traps, bends, etc. Nipples are carried up to 12 inches.

The office arrangements are excellent, and system is carried out here, there being a general and a private office. Among these arrangements is an excellent one for indexing catalogs, a glass-fronted case being used, and which has proven very satisfactory.

In entering contracts, small books with double columns are employed to enter all time and material used on a given job. All material returned is also credited in these small books, so that reference to this, at any time, reveals where the particular contract stands.

Formidable Competitor of U.S. Steel Corp.

Thus Say U. S. Papers of the British Empire Steel Corporation—Significance of Merger Not Appreciated by U.S. Manufacturers—Will Have Leading Position in Race for World's Business

COMMENTING on the formation of the British Empire Steel Corporation and its effect on business in the United States, the "Daily Metal Reporter" says as follows:

"While considerable publicity attended the announcement of the formation of the giant steel, shipping and coal combine in Canada, it is doubtful if the significance of the merger is generally comprehended and that it presents a potential competitive factor to be considered by the manufacturers in this country. Although many months will elapse before this new combination will make itself felt in the steel markets of the world, it starts out with all the essential advantages to place it in a leading position in the race for world business."

"Amalgamation of the principal steel companies of Canada and allied metallurgical interests into a single corporation, with the open backing of both the Dominion and the Imperial Governments, calls attention to the difference of view of industrial combinations taken by the British Empire and the United States, assuming each to be truly expressed by their administrative policy," says the "Wall Street Journal."

"The Department of Justice invites the Supreme Court to stultify itself on the United States Steel decision. The British Government invites the steel, coal and iron ore interests of the empire to get together and stimulate production for all they are worth, to their own advantage and that of the empire.

"The Canadian project will go through, backed as it is by the political and financial interests of both the colony and the empire. It will possess vast natural resources of coal and iron ore advantageously placed at tidewater. The corporation will get preferential treatment in the vast British world markets. It will be a formidable competitor even of the great United States Steel Corporation. It may well be the greatest industrial organization in the British Empire. Besides raw materials, rail and water transportation, a nucleus of iron and steel manufacturing units and abundance of British capital, it will have British brains and British banking behind it, and they are making an impressive showing just now while Washington is merely talking.

"Great British ironmasters have no prejudices, and if they can manufacture to better advantage in Canada, producing slabs and billets cheaper from access to raw materials, they can look at the proposition with a vision as wide as this continent or the world itself. They are not afraid of $500,000,000 capital stock, nor of question-begging epithets like that of 'water' which may be, as it was in the case of the United States Steel Corporation, on the proved book value of its stocks, merely intelligently anticipated growth. The British bankers and manufacturers know that the stock exchange will attend to squeezing out the water if there is any. Under the excellent British corporation laws the investor will know exactly what he is buying, and will be trusted thereafter to blow his own nose."

Many U.S. Manufacturers to Establish in Canada

Quite an extensive influx of United States manufacturers is developing at the present time throughout Canada. Many manufacturers have definitely decided to locate in Canada, while others have this important matter under advisement and they may arrive at a decision in the near future. It appears that better labor conditions are responsible somewhat for these decisions.

Manufacturers are much interested in the general labor situation and it applies in Quebec province, where strikes are less numerous than they are in many parts of the American Union. Under the changing conditions in many parts of the world to-day the manufacturer must, of necessity, have as much assurance as possible that he will be able to operate his plants uninterrupted.

Of course, these firms desire, primarily, to establish in Canada in order to avoid paying heavy duty on manufactured goods coming into Canada, and in addition to this they desire to secure the benefit of the British trade preference on export to the British Empire.

Among the companies which are interested in establishing plants in Canada is that of the Thomas Edison Company of Orange, New Jersey. This firm may establish a branch in or near Montreal in the near future. If they do establish it is understood that their plant will be an extensive one.

Decline in Output of Canadian Minerals

The preliminary report on the mineral production of Canada for 1919 shows the total estimated value of the metal and mineral production in 1919 was $173,075,913, which is less than the total value reached during any of the three preceding years. The production in 1918 was valued at $211,301,897.

The output and also the value of nickel shows heavy declines, 1919 production being 44,452,953 pounds, against 92,507,293 pounds in 1918.

Zinc showed little change, production for 1919 being 15,869 tons, against 17,541 tons in 1918. Both imports and exports of zinc showed a decline.

The 1918 production of copper was the highest recorded in Canada. That of 1919 is the lowest since 1911. Compared with 1918, copper production shows a decline of 36.7 per cent. in quantity and 52 per cent. in value.

Trade Notes from Montreal

Montreal.—John Watson & Company, master plumbers, for so long located on St. Catherine Street West, Westmount, have moved to a splendid location on Green Avenue. The new premises of the firm are well situated to serve the high-class trade of the Westmount district, and John Watson's usual disposition will doubtless bring new faces to the firm as well as a continuation of the business which he has labored so long to build up.

Some criticism has taken place of the action of the Montreal Master Plumbers in adopting the agreement of the National Catholic Syndicate. This was rather to be expected, but the Master Plumbers feel confident that the agreement with the National Catholic Syndicate will work out satisfactorily. There is assurance that the strikes will be eliminated by members of this syndicate, and if a good day's work is given by the journeymen there will be no difficulty. If all parties to the agreement do this there will be no question that matters will work out satisfactorily.

Z. St. Aubin has moved his plumbing shop from Bleury Street to Craig Street.

New Members Secured

Montreal.—At the last annual monthly meeting of the Montreal Master Plumbers held on Wednesday afternoon, three new members were added to the membership. These being Messrs. Hickey, Aubut and W. G. Egge. If the good work already begun continues the membership should reach the century mark for a great while. The members of the canvassing committee are to be congratulated on the success of their recent activities in this regard.

Exhibits Have Gone Forward

Montreal.—Two definite shipments of exhibits for the Canadian Industries Exhibition, which is to take place at the Royal Agricultural Hall, London, England, on June 3 to 17, left this week on two C.P.O.S. steamers. The exhibits comprise nearly every branch of trade. Pulp and paper, boots and shoes, leather goods, steel products, aluminumware, hardware, textiles, pianos, organs, and a great many other lines will find their way to London, where it is confidently expected by those in charge of this work, Canadian manufacturers will be very much better known to the people of the British Isles. The exhibits are expected to be in charge of competent representatives who will follow a little later.

LONDON PLUMBING BY-LAW
Continued from Page 16

Gas Heater

Local Ventilation

47. In dwellings and buildings of two or less stories, back venting shall not be required under the provisions of this by-law, except as hereinafter provided in this clause:

(a) All fixtures shall be vented when centre of waste is 8 feet or more from soil stack, to which it is connected. Sinks in all cases shall be vented. Fixtures within 8 feet of soil stack may not be vented.

(b). No form of anti-syhon trap shall be used unless it has first been approved by the Medical Officer of Health.

(c). No waste line under the building or basement floor from an unvented fixture shall be less than three inches inside diameter.

(d). A horizontal waste pipe receiving the waste from two or more fixtures, which are not vented, shall not be less than 2 inches inside diameter, and single fixtures not less than one and half inches, except the trap and connection to the fixture, which may be 1¼ in.

(e). Where batteries of four or more fixtures, other than water closets, are installed and the waste pipes combine and enter the stack through the one branch opening, they shall, in all cases, be vented.

Gas Heater

49. No lead waste or vent pipes shall weigh shall be installed without having a vent pipe, which shall be connected to a flue or carried into any unoccupied attic. All gas water heaters, jacket heaters, or coils in furnaces connected to range boilers shall be provided with safety valves.

Lead Pipes, Waste or Vent

52. No lead waste or vent pipes shall weigh less than the following, when used in any building:

1¼-inches	inside	diameter	 7	lbs. per yd.
1½	"	"	 8	"
2	"	"	....10½	"
2½	"	"	....13½	"
3	"	"	....16½	"
4	"	"	24	"

50. In all cases where water pipes are placed under ground they shall be of lead or galvanized iron, and of the weight as specified in this By-law.

Wiped Joints

51. All lead pipes shall have proper wipe joints.

Connection Between Lead and Iron Pipes

52. Every connection between lead and iron pipes shall be made with brass thimbles, ferrules, solder nipples, or ground-in unions, having properly wiped joints, and the ferrules shall be properly gasketted, leaded and caulked into the said pipe.

Ferrules

53. Brass thimbles, ferrules or solder nipples must not be wiped into closet bend or pipe or trap when used for venting same. All brass thimbles shall be increased in size at the top so that the lead pipe will enter full size.

Ferrules Shall Weigh

54. Ferrules for four-inch pipe shall weigh not less than 2½ lbs., for three-inch pipe not less than 1¾ lbs., and for two-inch not less than 1½ lbs., each ferrule must not be less than four inches in length.

Brass Flange for Closet Connection

55. Where the trap to closets is above the floor, the connection of the same with the soil pipe shall be made with lead bend or lead pipe and cast brass floor flange with gasket or rubber or asbestos, said brass flange to be not less than three-sixteenths of an inch thick.

Range Closets or Latrines Not Allowed

56. No closet or other convenience which allows the escape into the house of air or gas from any part of it, or from the drain or soil pipe connected with it, or which allows any accumulation of filth in or about it, shall be fitted up or used. Range closets or latrines will not be allowed.

Self-Closing Cocks to be Used in Water Closets

57. No arrangement shall be made for supplying water closets or urinals except by self-closing cocks, and no arrangement shall be made for cleaning water closets or privy vaults by waste pipes from wash basins or sinks or other improper means; but they shall be fitted up with the proper fixtures and appurtenances belonging to them respectively. No copper lining of tank for a water closet shall be lighter than 10 ounces to the square foot and weight must be stamped on lining in conspicuous and accessible position. Sheet galvanized iron shall not be allowed.

Water Closet in Direct Communication With the External Air

58. No person shall locate or cause to be located any water closet in any sleeping room, or in any room, apartment or vault which is not in direct communication with the external air by means of a window or air space having an area of at least two (2) square feet, or vertical air shaft having an area of two (2) square feet for the first storey and increased ten per centum for each storey it passes through.

Inspections

59. Sec. 1.—All piping, traps and fixtures of a house drainage or plumbing system shall be inspected by the Inspector to ascertain if all the requirements of this By-law have been complied with.

Covering of Work

Sec. 2.—No plumbing system or part thereof shall be covered until it has been inspected or tested and approved as herein prescribed.

Uncovering of Work

Sec. 3.—If any plumbing system or part thereof is covered in before being regularly inspected or tested and approved as herein prescribed, it shall be uncovered upon the directions of the Health Officer.

Defective Work

Sec. 4.—If inspection or test shows defects, the defective work or materials shall be replaced within three (3) days and the inspection or test made again.

Inspection and Tests

Sec. 5.—(a) It shall be the duty of the plumber to notify the Medical Officer of Health, in writing when the work is ready to be inspected or tested. Inspection will be made the following day on all notifications received before 12 a.m.

Notification

(b) It shall be the duty of the plumber to make sure that the work will pass the inspection or stand the test prescribed, before giving the above notification.

(c) If the inspector finds that the work will not pass inspection or stand the test, the plumber shall be required to re-notify as above.

Inspection and Test

Sec. 6.—(a) The material and labor for the inspection and test shall be furnished by the plumber or drainlayer.

(b) All piping, traps and fixtures of a plumbing system, shall be tested by the plumber first, the roughin in shall be tested with water.

Water Tests

(c) The water test shall be applied by closing the opening at the outlet end of the house drain and all other openings in the piping with proper testing plugs and the system filled with water to the top of stack above the roof when the entire system is tested; the water column to be left standing at least fifteen (15) minutes. If the water level remains constant during such time, the system shall have been acceptably tested.

Smoke Air Tests

(d) The smoke air test shall be made by attaching the smoke machine to any suitable opening or outlet that will enable the inspector to ascertain that smoke has reached all parts of the system and when the system is completely filled with dense pungent smoke and the roof openings emit smoke they shall be closed and an air pressure maintained for at least ten (10) minutes without leakage. The Inspector may require the removal of any clean-out or unsealing of any trap to ascertain if the smoke has reached all parts of the system.

Order of Tests

60. The tests may be made separately as follows:

Sec. 1—(a) The soil, waste, vent, back vent, inside conductor and drainage pipes, which would be covered up before building is enclosed or ready for completion.

Water Test

(b) When the soil and waste pipes within the buildings are in place, connected to the traps and before being covered, they shall be filled with water to top of stack above the roof. If leaks, are indicated, they shall be found and corrected, removing all defective material and replacing the same with sound material and a new water test applied until the work is found to be tight.

The water test shall be applied to all buildings up to and including the fourth floor above which a smoke test under pressure may be applied.

Final Inspections

(c) Immediately after the work is fully completed, there shall be a written request sent to the Medical Officer of Health for a final inspection. When the work has been properly inspected, tested and approved the Medical Officer of Health shall issue a certificate of acceptance to the plumber, and no work will be entered as complete until the plumber has obtained this certificate.

Stable and Stable Yard Drains

Sec. 2.—(a) If a stable or any part of a stable be used for human habitation, the same inspections and tests of plumbing and drainage system thereof shall be made as in the case of any ordinary dwelling.

Smoke Test Imperative

(b) The smoke test shall be used in testing the sanitary condition of the drainage system of all buildings where there is a reason to believe that the plumbing system has become dangerous or defective on account of settlement of the building, or by abuse, accident or any other cause. In such buildings condemned by the Health Officer because of the insanitary conditions of the house drainage or plumbing, no such drainage or plumbing shall be considered as coming under the head of repairs, but all such house drainage or plumbing shall be done as in the case of new buildings.

Alterations of Plumbing

(c) When alterations are made requiring the addition of two fixtures or a water closet, they shall be inspected by the Inspector, or when a new bathroom is installed or the building is remodeled the entire drainage system shall be made to conform with the requirements of this By-law.

All Work to be Subject to Inspection by Medical Officer of Health

61. All work contemplated in this By-law shall be done in a workmanlike manner, and shall be subject to the inspection, supervision and approval of the Medical Officer of Health or any inspector appointed by him; and all plumbing work required under this By-law shall only be done by a licensed master plumber, or by a license journeyman plumber, and all faulty or defective work which may at any time be discovered shall be made perfect to the satisfaction of the Medical Officer of Health or inspector appointed by him, and when so found satisfactory, a certificate shall be issued to the plumber at the expiration of seven days from date of inspection, unless in the meantime such work shall have become faulty or defective. Provided, however, that this section shall not prevent a person from doing necessary plumbing to and on his own premises subject to the inspection and the regulations demanded by this By-law.

Appointment of Plumbing Inspectors

62. The Medical Officer of Health, with the approval of the Council, shall appoint such inspectors of plumbing as may be found necessary after passing an examination considered proper by him, appointments to be made from applicants who obtain sixty-five per centum or more marks at such examination or examinations; such inspectors shall be under the supervision of said Medical Officer of Health.

63. "No person shall damage or injure any common sewer or private drain, or sewer communicating therewith, and no person shall cause or permit the discharge of steam or hot water above a temperature of 150 degrees Fahrenheit from any engine or boiler, or oil, tar and grease, into any common sewer or private drain, or sewer communicating therewith." (See diagram of intercepting tank in office.)

64. A person upon presenting satisfactory proof of his ability may be licensed as a master plumber for the care, alteration or addition of the drainage system of a designated manufacturing or mercantile establishment, institution, hotel, etc., where it is necessary to have the continual service of a master plumber, but in no case shall a person be permitted to do any plumbing or drainage work in any building or buildings other than that for which he is licensed, unless he has first secured a place of business as provided for in this ordinance.

65. Any person convicted of a breach of any of the provisions of this By-law shall forfeit and pay, at the discretion of the convicting magistrate, a penalty not exceeding(exclusive of costs), the sum of Twenty Dollars for each offence, and in default of payment of the said penalty and costs forthwith, the said penalty and costs, or costs only, may be levied by distress and sale of the goods and chattels of the offender, and in case of there being no distress found out of which such penalty can be levied, the convicting magistrate may commit the offender to the common gaol of the City of London with or without hard labor, for any period not exceeding six calendar months, unless the said penalty and costs (if any), including the costs of the said distress and of the committal and conveyance of the offender to the said gaol, are sooner paid.

66. Section 30, 31, 32, 33, 34, 35, 36, 37, 38, 39 and 40 of By-law 4937 relating to the public health, and By-law No. 6008 to secure the sanitary condition of buildings, passed on the 24th day of November, A.D., 1919, are hereby repealed.

Passed in open council this day of , A.D., .

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

IMPORTANT price changes have been made affecting basic lines and prospects do not look promising for lower prices in the near future. The new range boiler prices have been announced and are an advance over previous quotations. Flat and corrugated sheets have also been marked up. Gasoline, fire pots and torches, asbestos, millboard, stocks and dies, hack saw frames and water pumps all have been revised upwards.

The freight embargo on the United States railroads has been the means of tying up many industries and is holding up shipments of many commodities. It is the belief of many that some time will elapse before the congested freight in the many shipping centres is straightened out.

The cool weather has been the means of holding work back to some extent, although all in the trade seem well satisfied with the present season's business to date.

Collections are coming freely, although in some communities accounts have slightly overrun the present day prompt schedule.

TORONTO, May 14.—Many higher prices have been made which affect basic lines. The prices on range boilers have been withdrawn for some time but new quotations are now announced which are an advance over previous prices. Stocks and dies, hack-saw frames, gasolene firepots, asbestos millboard, water pumps, corrugated and flat sheets, all have been revised upward. A decided scarcity is noted on many well-known lines, and future prospects do not look bright for the securing of sufficient raw material to relieve the situation. Collections are good and money is moving freely.

Oster Stocks and Dies Are Marked Up 10%

STOCKS AND DIES of the Oster make have been revised upwards this week and the new quotations are approximately 10 per cent. higher.

10% *Advace on Hack Saw Frames*

HACK SAW FRAMES of the Union Hardware make have been revised upwards, and the No. 10 is now quoted at $10.50 per dozen, while the No. 50 is quoted at $6.30 per dozen. This advance is approximately 10 per cent. higher than former quotations.

Fire Pots and Torches Are Now 10% *Higher*

FIREPOTS AND TORCHES.—Prices have been revised upwards to the extent of approximately 10 per cent. over former quotations.

Asbestos Mill Board Up; Now $13.75 *Cwt.*

ASBESTOS MILL BOARD is among the list of advances made this week, the new quotations now being quoted at $13.75 per hundred pounds.

Lead Pipe, Solder, etc. Has Sagging Tendency

LEAD AND ZINC PRODUCTS.—The present demand is a heavy one and large volumes are going out. The price tendency of nearly all products of lead and zinc is somewhat weaker, and although no lower prices have been made this week it would not surprise many in the trade if lower prices would soon be announced unless the present situation changes.

This is attributed to the present situation of pig lead which, in some instances, has been affected by the lower quotations on the English market. Manufacturers state that pig lead is coming in better quantities and the scarcity which was noted for some time apparently has been overcome. The following quotations are being quoted at present:

Lead pipe, list, per lb.	0 17½
Lead waste pipe, list, per lb.	0 18½
Do., over 8 inches, list, per lb.	0 19½
Above subject to discount of 10 per cent.	
Lead traps and bends	add 30%
Lead wool, lb.	0 20
Lead sheets, 4 to 6 lbs. sq. ft., in rolls. per lb.	0 16
Cut sheets, ½ to ¾c lb. extra, and cut to size 1c lb. extra.	
Solder, wire, lb.	0 45¾
Solder, strictly, lb.	0 43
Solder, commercial, lb.	0 40
Zinc sheets, per lb.	0 19
Solder, guaranteed, lb.	0 43¾
Solder, wiping, lb.	0 40

New Range Boiler Prices Now Available; Higher

RANGE BOILERS.—Prices which have been withdrawn for some time have now been announced and needless to say are an advance over former quotations. Jobbers state they have difficulty in securing sufficient supplies from the manufacturers, who in turn claim that this is due to the difficulty of securing supplies of raw materials and coal, etc., which, to a considerable extent, is attributed to the embargo which has prevailed on freight transportation on the U. S. railroads. Some of the new quotations are as follows:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Water Pump Prices Have Higher Revisions

WATER PUMPS have been revised upwards and higher prices are now in effect. The cottage pitcher spout pump now sells for $6 each, while the cottage force pump has been marked up to $6.75 each. Other lines having higher prices are as follows:

	Each
Open Pitcher Spout—	
No. 2	$3.33
No. 3	3.68
No. 4	4.38
Closed Pitcher Spout—	Each
No. 2	$3.56
No. 3	3.94
No. 4	4.69

Sheets and Plates Have Advanced 25c *Cwt.*

SHEETS AND PLATES have been advanced and the new quotations are approximately 25 per cent. higher. Manufacturers state that prospects for securing sufficient stocks for this season are very light and that they were just beginning to get back on their feet after the steel strike last fall, and some state they were gradually catching up with their orders as well as securing some warehouse stocks.

The recent tie-up on the United States railroads, however, has changed this situation, and it is believed that very few jobbers or manufacturers have stocks of any account to sell.

Some state there has been nothing started from the mills for almost two weeks. This being the case they state the mills would have their premises congested with enormous tonnages of steel, which would be so mixed up that when transportation does move again it may be some time before these are straight-

ened out and some have it that if all disruptions and tie-ups would immediately cease it would take until about July before stocks would come to hand with even the same volume as before the tie-up mentioned.

The following prices are quoted here merely as a guide and it is believed that many are charging premiums on these prices and that present business to a certain extent on this commodity is subject to premiums on account of the very heavy demand and the light stocks on hand:

BLACK SHEETS

14 gauge	....	$8 95
16 gauge	....	9 00
18-20 gauge	....	9 45
22-24 gauge	....	9 50
26 gauge	....	9 55
28 gauge	....	9 65
3-16 inch plate	....	9 75
¼-inch boiler plate	....	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$12 00	$11 50	$12 00	$12 25
U.S. 28	11 45	11 70	11 45	11 85
U.S. 26	11 15	11 40	11 15	11 55
22 and 24	11 00	11 25	11 00	11 40
18 and 20	10 70	10 95	10 70	11 10
16	10 70	10 95	10 70	11 10
12 and 14	10 55	10 20	10 55	10 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Cotton Waste Firm, Remains Unchanged

COTTON WASTE.—Present quotations on cotton waste are very firm, although no changes have recently been made. The raw materials on the primary market continue to advance and many lines made of cotton are frequently being revised upwards however. No immediate change is at present looked for and quotations are as follows:

WASTE

Cream, Polishing	....	0 28

WHITE

XXX	....	0 22½
XX	....	0 20½
X	....	0 18½
XC	....	0 17½
Japanese	....	0 17
XXX	....	0 24
XX, grad.	....	0 22½
XLCR	....	0 21
X Empire	....	0 19½
X Press	....	0 17½
X Special	....	0 15½

COLORED

No. 5	....	0 16¾
No. 1	....	0 16½
No. 7	....	0 15
No. 1A	....	0 13¾
No. 1B	....	0 11¾
Fancy	....	0 19
Lion	....	0 17
Standard	....	0 15
Popular	....	0 13
Keen	....	0 11

Above lines subject to trade discount for quantity.

Soil Pipe Prices Still Withdrawn

SOIL PIPE.—New prices on this commodity have as yet not been made, and all quotations are still withdrawn. The recent embargo on the United States railroads has been the cause for considerable shortage of raw material, coal, etc., it is stated, and jobbers state that while there is no great shortage at present they would not be surprised to find the situation somewhat tighter if present conditions are not relieved.

Brass Valves, Fittings, etc., Firm and Unchanged

BRASS VALVES, ETC.—Manufacturers state they are very busy on all kinds of brass valve and compression work, etc. Especially is this true of marine supplies, and all have been busy supplying and equipping boats of the various kinds. Plumbers' compression work also shows a good demand, although the rush season has not yet begun. The present quotations on the following list are very firm, with strong tendencies to advance, and are as follows:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	less Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Fair Demand For Boiler Tubes; Price Firm

BOILER TUBES. — Notwithstanding the fact that the boiler tube season is a little off, jobbers state they are very well satisfied with the present business being offered, which they state speaks very well for the coming busy season. Some rumors are current that, owing to the scarcity of skelp, boiler tubes may be scarce this fall. Considerable business is still being done on barges, it is stated, and many boats and barges of nearly all kinds have been refitted with tubes this year, which may have been responsible for considerable part of the heavy demand. It is the belief of some that the mills manufacturing skelp will find a great difficulty in supplying or filling their present booked orders on account of the many disruptions and tie-ups they have had to contend with, and prices are very firm and very few seem to be looking for lower prices for some time to come.

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	$.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 50	30 00
2 inch	32 00	28 75
2¼ inch	36 00	31 25
2½ inch	45 00	35 75
3½ inch	69 00	48 75
4 inch	96 00	62 50
3 inch	53 00	45 75
3¼ inch	.....	52 50

Wrought Pipe Scarce; Supplies Not Coming

WROUGHT PIPE.—The present situation is termed as tight, and manufacturers claim great difficulties in securing raw materials. This is mainly due to the transportation tie-up on the U. S. railroads. Another drawback, they state, is the fact that they often receive shipments of coal and cannot secure the metal, or the case may be reversed, and as both are necessary for the manufacture of pipe the manufacturer states that he only has one chance out of two for securing sufficient materials, etc., necessary for the manufacture of his product. The following are the present quotations:

PIPE—WROUGHT

Price List No. 44—April 8, 1920.

STANDARD BUTTWELD S/C

	Steel Black	Steel Galv.	Gen. Wrot. Iron Black	Gen. Wrot. Iron Galv.
⅛ in.	$6 50	$ 8 50	....	....
¼ in.	5 13	7 26	$ 5 43	$ 7 56
⅜ in.	5 13	7 26	5 43	7 56
½ in.	6 84	8 42	7 27	8 84
¾ in.	8 45	10 58	9 03	11 16
1 in.	12 50	15 64	13 35	16 49
1¼ in.	16 91	21 16	18 06	22 31
1½ in.	20 21	25 30	21 59	26 68
2 in.	27 20	34 04	29 05	35 89
2½ in.	43 00	53 82	....	....
3 in.	56 23	70 38	....	....
3½ in.	71 30	88 32	....	....
4 in.	84 48	104 64	....	....

STANDARD LAPWELD S/C

	Steel Black	Steel Galv.	Gen. Wrot. Iron Black	Gen. Wrot. Iron Galv.
2 in.	$30 90	$37 74	$34 60	$41 44
2½ in.	45 34	56 16	51 19	62 01
3 in.	59 29	73 44	66 94	81 09
3½ in.	73 14	90 16	82 34	99 36
4 in.	86 66	106 82	97 56	117 72
4½ in.	0 98	1 23	1 24	1 49
5 in.	1 15	1 44	1 44	1 73
6 in.	1 49	1 86	1 87	2 25
7 in.	1 94	2 43	2 42	2 90
8-L in.	2 04	2 55	2 54	3 05
8 in.	2 35	2 94	2 92	3 51
9 in.	2 81	3 52	3 50	4 21
10-L in.	2 61	3 26	3 25	3 90
10 in.	3 36	4 20	4 18	5 03

Terms—2% cash discount if paid within 30 days. Approved credit.

Enamelware Prices Firm; Hold Unchanged

ENAMELWARE prices continue to hold firm, although present indications point to higher quotations in the near future. Raw materials are said to be more difficult than ever to procure, and the recent transportation tie-up on the United States railroads is said to have aggravated the already acute situation. The advanced cost of materials of many kinds is having a serious effect on nearly all commodity prices, and this is also true of enamelware. The present quotations are as follows:

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4345			11 05
18x24" Apron F154 or P3845 or P3847			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9.05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Prices on Corrugated Sheets Revised Upwards

CORRUGATED SHEETS. — A slight advance has been made on corrugated sheet prices which is said to be due to the scarcity of raw materials and other factors. The tie-up on the U. S. railroads is said to have set manufacturers and manufactured commodities back almost farther than during the previous steel strike which occurred last Fall, it is stated. Some manufacturers state the present tie-up has a worse effect than the previous strike owing to the fact that effects from the previous strike are still being felt and in many cases some have not been able to overcome that sit-

MADE IN CANADA

MUELLER

Nickel Plated

Adjustable Basin Traps

With Cast Parts

We offer N.P. Adjustable Basin Traps, S. and P., Plain and Vented, in 1¼" size, for prompt shipment.

Mueller Traps combine:

Beauty of Design,
Quality of Material
and Finish.

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

H. Mueller Mfg. Co., Ltd.

SARNIA
CANADA

MANUFACTURERS OF HIGH GRADE MUELLER WATER PLUMBING AND GAS BRASS GOODS

uation, and the present tie-up coming on top of the former one has been the cause of great difficulties and inconvenience, and one manufacturer stated that it was his belief that if the strikes and disturbances, etc., were all called off immediately that it would be July before the material would commence to arrive again as satisfactorily as previously.

CORRUGATED SHEETS	Per 100 sq. feet Galv'd
No. 28-gauge	$10 50
No. 26-gauge	11 25
No. 24-gauge	16 75
No. 22-gauge	19 75
No. 20-gauge	23 50
No. 18-gauge	30 00

On shipments of 300 lbs. and over, freight is allowed south and east of and including North Bay; also several western counties in Quebec Province. Places north and west of North Bay, the freight is equalized on North Bay. For Quebec and Maritime Provinces, freight is equalized on Montreal.

Discount 7½%.

Prices on Conductor Pipe and Eavestrough Firm

CONDUCTOR PIPE.—The shortage of sheets, which is daily becoming more acute, may result in higher prices being made on conductor pipe and eavestrough. Manufacturers state that while they were fortunate in securing material for making a fair quantity of this commodity that the demand has been a heavy one and stocks are getting low with prospects not very bright for replenishments. The present quotations are as follows:

PIPE (Conductor)

Plain		
2 in., in 10-ft. lengths, list	....	8 00
3 in., in 10 ft. lengths, list	....	9 70
4 in., in 10-ft. lengths, list	....	12 80
5 in., in 10-ft. lengths, list	....	17 50
6 in., in 10-ft. lengths, list	....	21 30

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in	$6 90	15-in	$12 50
10-in	7 70	18-in	16 00
12-in	9 10		

F.O.B. Toronto, Oshawa, Ottawa.

Add 5% to the above list.

Prices on Pipe Fittings Continue to Hold Firm

PIPE FITTINGS continue to hold at firm prices, no change being made over those of last issue. Business continues very brisk, although the cool weather has held back considerable work, it is believed. The present quotations are firm and are as follows:

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Waste Materials Quiet; Shows Sagging Tendency

SCRAP AND WASTE MATERIAL.—A quiet buying period is still in effect and dealers say the present market is practically dead, and while some state they are unable to diagnose the situation, others have it that the situation is entirely due to the present condition prevailing at many of the mills owing to the tie-up of the U. S. railroads which is said to be greatly hindering production in all lines. Iron and steel continue to be very scarce and, although there are not many inquiries, it is stated that very little old iron and steel are coming forward. Many are at a loss to understand the reason for this, although some state that owing to the higher prices being charged for nearly all commodities whose basic metal is iron or steel that present holders are loath to discard an old article in view of replacing it with a newer and more costly one. The following are the present quotations:

DEALERS' BUYING PRICES

Pipe scrap	....	11 00
No. 2 busheling	....	13 00
Stove plate, per ton	....	....
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 08
Scrap zinc	....	0 06½
Heavy copper	....	0 17
No. 1 machinery cast	....	....
Wrought iron, No. 1, per gr. ton	....	15 00
Heavy melting steel	....	15 00
Heavy lead pipe	....	0 06
Old rubbers, boots and shoes	....	0 06
Overshoes, lumbermen's rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 04
Heavy lead pipe	....	0 06

BIG BUYERS

The purchasing power of the rural population is much greater than it was a decade ago, and the merchants in rural communities have much more competition than they had ten years ago. The mail order houses, the parcel post, the interurban trolley, and the automobile have all been factors in turning the trade of the rural dweller citywards. Conditions are changing, and methods of transacting business are changing. The small town merchant who wants to succeed to-day, must have more than a stock of goods to sell; he must have some attraction that will distinguish his store from the ordinary every-day store. He must also sell service along with his merchandise.

Montreal.—Owing to the operation of a new plumbing by-law the journeymen plumbers of Montreal are now required to have a license from the city. This carries with it the necessity of having a certificate of competence from a board of examining plumbers. Registration must be made at the City Hall, and this means that a more strict account is being kept of journeymen than heretofore.

TRADE MARK J.M.T. REGISTERED A GUARANTEE OF QUALITY

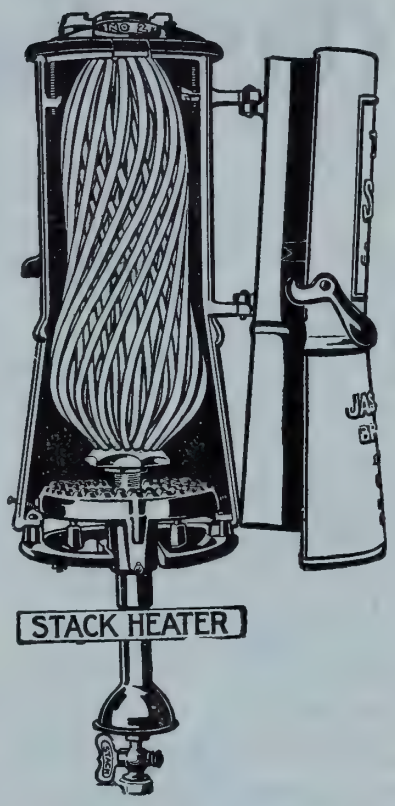
Will Heat Water Faster With Less Gas

STACK HEATER

The Stack Hot Water Heater will heat water in one minute, and with less gas. These are the strong points which make easy selling for the Stack Heater.

When your customers see how the water passes into the numerous small pipes exposed to the hot gas flame, they understand. It requires no technical knowledge to see that the water will heat faster in the numerous small pipes than in one large coil.

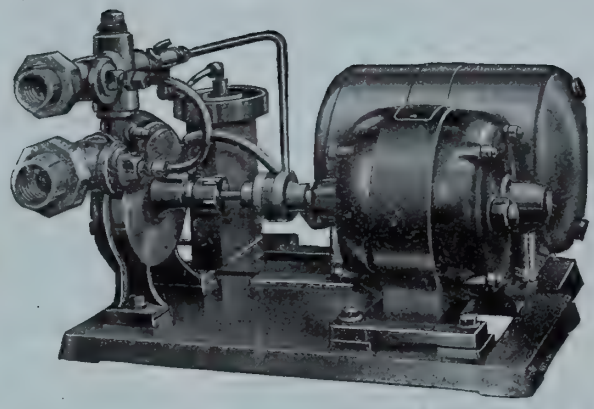
Send for Stack Heater Display Card.



James Morrison Brass Mfg. Co., Limited
93-97 Adelaide Street West - Toronto

Made in Canada
Westco

A Water System Without a Tank
For Operation off Hydro or Farm Light Plant



Here you have none of the installation troubles and high expenses of the old style gravity systems with their attic tanks, nor of the equally troublesome pneumatic tank systems at present so widely used. You, **Mr. Dealer,** know what they cost you in **Service** and **Wasted Time,** even after they are installed.

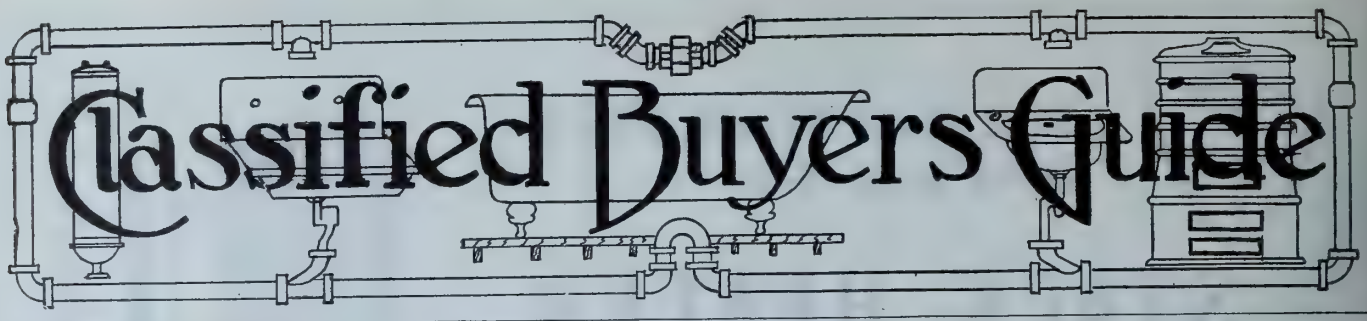
The PUMP in the "WESTCO" Tankless Water System has ONLY ONE MOVING PART

Think what this means in **SAVED SERVICE EXPENSE and SATISFIED CUSTOMERS.** It is **COMPLETELY AUTOMATIC** in its operation.

Opening any faucet starts pump immediately. Close the faucet and pump stops. It comes completely assembled, as shown in the cut. A man can carry it. It pumps from 300 to 500 gallons per hour against any pressure required up to 75 lbs. (175 ft. head).

Is your Territory Still Open? Literature and Full Particulars on Request.

Westco Pumps, Ltd., 707 Yonge St., Toronto



AIR CONDITIONING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR RECEIVERS
Wm. B. Scaife & Sons Co., Oakmont, Pa.

AIR LINE SYSTEMS
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AIR PRESSURE TANKS
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Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Steel & Radiation, Ltd., Toronto.
United Brassfounders and Engineers, Ltd., Cornbrook, Manchester, England.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.

ASBESTOS GOODS
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook. Manchester, England.

BOILERS, HOUSE HEATING, GAS FIRED
The Dodd Heating Systems, Ltd., Toronto, Ont.

BOILERS, STEAM OR HOT WATER
The Canadian John Wood Mfg. Co., Toronto.
The Dodd Heating Systems, Ltd., Toronto, Ont.
Gurney Foundry Co., Limited, Toronto.
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Lord & Burnham Co., Ltd., Toronto.
Modern Heating & Eng. Co., Ltd., Montreal.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOILER FITTINGS
Fittings Limited, Oshawa.

BOILER STANDS
Fittings Limited, Oshawa.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N.Y.

BRASS GOODS, VALVES, ETC.
Joseph Breeden & Co., Ltd., Birmingham, Eng.
Canadian Brass Co., Ltd., Galt, Ont.
Canadian Wolverine Co., Ltd., Chatham.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
G. & W. G. Gummer Ltd., Rotherdam, Eng.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Trimont Mfg. Co., Roxbury, Mass.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

CELLAR DRAINERS
Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CLAMPS "C"
J. H. Williams & Co., Brooklyn, N.Y.

CLOSETS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
United Brass & Lead, Ltd., Toronto.

COUNTRY RESIDENCE EQUIPMENTS
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DAMPER REGULATORS
C. A. Dunham Co., Ltd., Toronto.

DEHUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

DRAINAGE FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders and Engineers, Ltd., Cornbrook, Manchester, England.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ENGINEERS
Modern Heating & Eng. Co., Ltd., Montreal.

ELECTRIC PUMPING MACHINERY
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Toronto Hardware Mfg. Co., Ltd., Toronto.

FUEL SAVING DEVICES
Modern Heating & Eng. Co., Ltd., Montreal.

FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.

FITTINGS, CAST IRON, SCREWED, FLANGED, DRAINAGE AND MALLEABLE, SCREWED
Fittings Limited, Oshawa.

FILTERS (WATER)
Wm. B. Scaife & Sons Co., Oakmont, Pa.

FLUSHOMETERS
Canada Metal Co., Ltd., Toronto.
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Beaton & Corbin Mfg. Co., Southington, Conn.

FLOOR AND CEILING PLATES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

FURNACES
The Dodd Heating Systems, Ltd., Toronto, Ont.
Gurney Foundry Co., Limited, Toronto.
Steel & Radiation, Ltd., Toronto.

GAS APPLIANCES
Consumers' Gas Co., Toronto.

GASOLINE ENGINES
Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS
Consumers' Gas Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

GLOVES, WORKING
R. G. Long & Co., Toronto.

GRATES FOR RANGES, FURNACES AND BOILERS
McIntyre & Taylor, Toronto.

GREY IRON CASTINGS
Fittings Limited, Oshawa.

HEAT GENERATORS
Galt Brass Co., Galt, Ont.
James Morrison Brass Mfg. Co., Toronto.

HEATING APPARATUS
C. A. Dunham Co., Ltd., Toronto.
Modern Heating & Eng. Co., Ltd., Montreal.

HEATERS
Lord & Burnham Co., Ltd., Toronto.
Modern Heating & Eng. Co., Ltd., Montreal.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.

HEATING SYSTEMS
The Dodd Heating Systems, Ltd., Toronto, Ont.
C. A. Dunham Co., Ltd., Toronto.
Modern Heating & Eng. Co., Ltd., Montreal.

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B. F. Sturtevant Co., Hyde Park, Boston, Mass.

HUMIDIFYERS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

HOIST HOOKS
J. H. Williams & Co., Brooklyn, N.Y.

HOT WATER COILS, DOMESTIC
McIntyre & Taylor, Toronto.

HUMIDIFIERS
B. F. Sturtevant & Co., Hyde Park, Mass.

KNITTED GOODS, WORKING
R. G. Long & Co., Toronto.

LEAD
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hoyt Metal Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

MACHINISTS' TOOLS
J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS
Gurney Foundry Co., Limited, Toronto.
Fittings Limited, Oshawa.

MIXING VALVES
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

MONKEY WRENCHES
G. & W. G. Gummer, Ltd., Rotherham, Eng.
Trimont Mfg. Co., Roxbury, Mass.

OVERALLS
R. G. Long & Co., Toronto.

PACKING
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., Ltd., London and Toronto.

PACKLESS RADIATOR VALVES
Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS
Beaton & Cadwell Mfg. Co., New Britain, Conn
Beaton & Corbin Mfg. Co., Southington, Conn
Fittings Limited, Oshawa.

PIPE, BLACK AND GALVANIZED
Canadian Tube & Iron Co., Ltd., Montreal.
Consumers Metal Co., Ltd.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd. Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.

PIPE CLEANSER
Borden Canadian Co., Ltd., Toronto.
Canadian Wolverine Co., Ltd., Chatham.
Chamberlain Desolvo Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Trimont Mfg. Co., Roxbury, Mass.

PIPE JOINT COMPOUNDS
Canadian Wolverine Co., Ltd., Chatham.
Canadian H. W Johns-Manville Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.

PIPE, SOIL, AND FITTINGS
Anthes Foundry Co., Toronto and Winnipeg.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Toronto Hardware Mfg. Co., Toronto.
United Brassfounders & Engineers, Ltd., Cornbrook, Manchester, England.
Warden King, Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY
Borden Canadian Co., Toronto.
John Hall & Sons, Ltd., Brantford.
A. B. Jardine & Co., Hespeler.
Wells Bros., of Canada, Galt.

PIPE WRENCHES
Borden Canadian Co., Toronto.
Trimont Mfg. Co., Roxbury, Mass.
J. H. Williams Co., Brooklyn, New York.

PLUMBERS' TOOLS
J. H. Williams & Co., Montreal, Que.

PNEUMATIC WATER SUPPLY TANKS
Empire Mfg. Co., London and Toronto.
Wm. B. Scaife & Sons Co., Oakmont, Pa

PORCELAIN WARE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
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Range Boiler Stands are adjustable to 30-35-40 gallon boilers, and you can connect directly under the boiler. Inexpensive but flawless.

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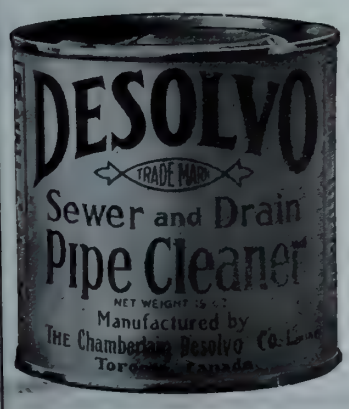

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For all around domestic utility, they appeal to the housewife.
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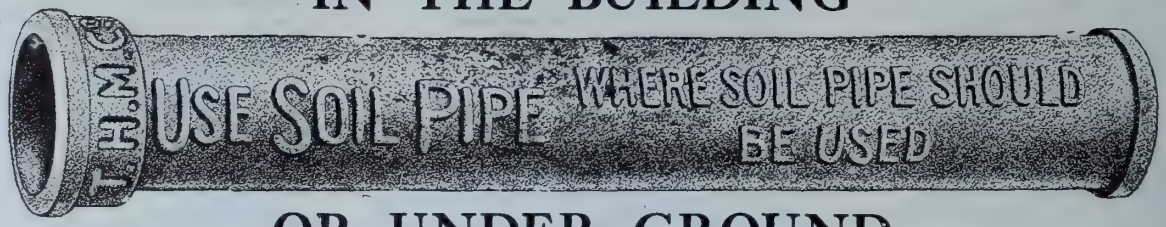

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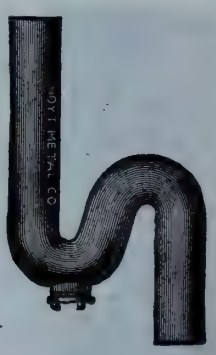

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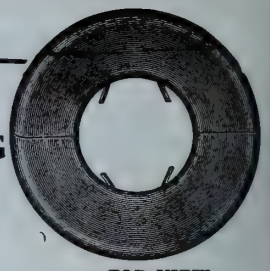

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Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

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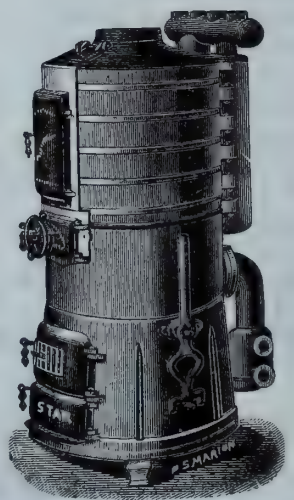
Thousands of Star Boilers in Use requiring repair Parts



It will be a long time before folks forget the coal troubles of the last few seasons.

The principal feature of the Star Boiler is that no other round hot water boiler has any coal-saving improvement not embodied in the "Star."

Then, too, while boiler i[illegible]nation and repair time is here, why not stock up with Star parts, for which O. Belanger has taken over the rights and is now making?

Many thousands of Star Boilers are in use requiring these repair parts hitherto unobtainable.

Write to us at once in time to catch the season's business.

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MONTREAL

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Where Will You Be When The Band Wagon Starts?

FRANK B. LASETTE, President of the National Association of Master Plumbers of the United States, said in a recent article: "Personally, I am entirely satisfied that there is a great volume of business ahead for the plumbing and heating contractors, and that when it once starts in real earnest, the problem will be how best to take care of it."

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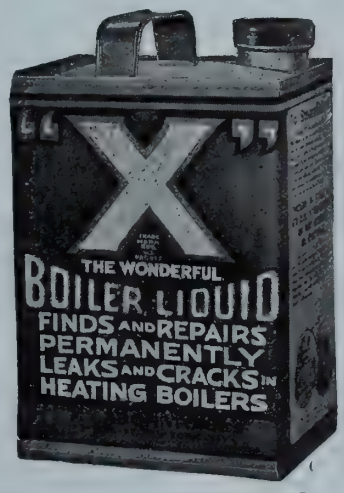

Be sure you have a stock on hand for emergencies

Get it from your jobber.

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The four good points that make TRIMO PIPE WRENCHES superior are the SPIRAL SPRING always in place, STEEL FRAMES that will not break, NUT GUARDS that protect adjustment nut and the INSERTED JAW in handle that can be replaced when worn.

The Trimo Steel Handle Pipe Wrench is also made in the 6", 8" and 10" size with narrow jaws and fine milled teeth, especially adapted for close work.

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Hinged PipeVises *Pipe Cutters*
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Floor and Ceiling
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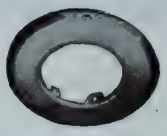

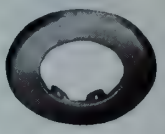

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The Beaton & Corbin Mfg. Co.,
Southington, Conn., U.S.A.
The Old Original Company

"HAUSE" PIPE JOINT CEMENT

For steam, water, air, oil, gas, gaskets, etc. The cement that cements. Sets like gum. Allows no leaks.

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Manufactured in Ready Mixed and Powder Form.

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Guaranteed to Repair Leaks in Boilers and Heating Systems
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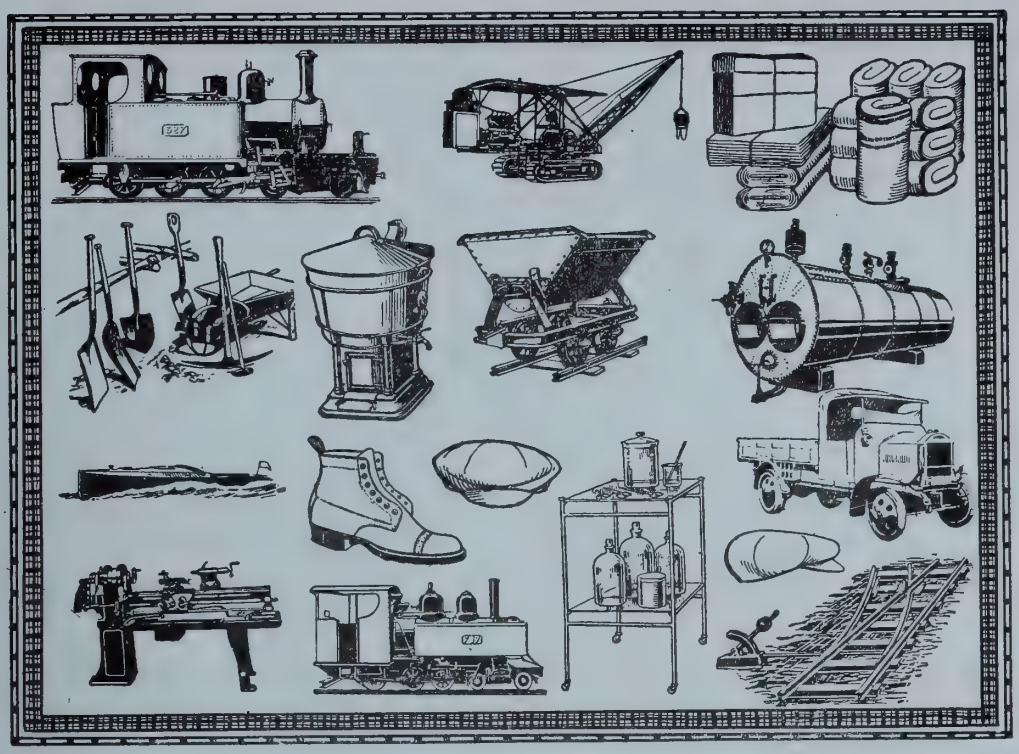

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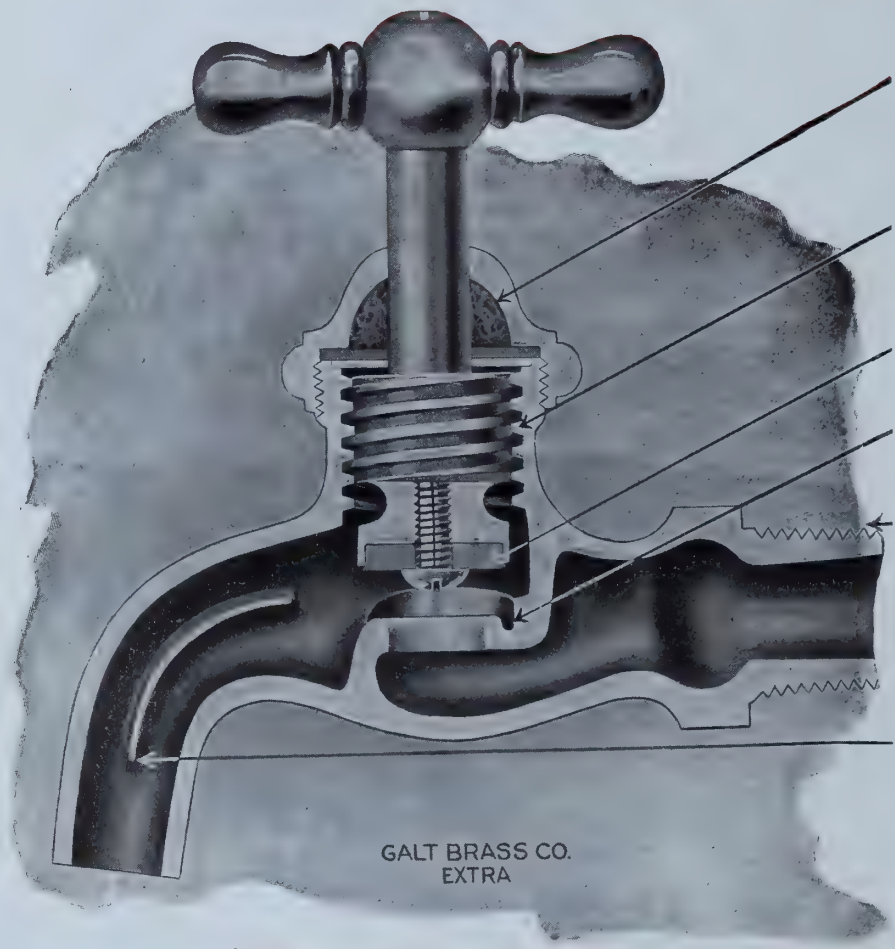

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It means something to a plumber to know he can get high-grade brass goods with an accurate uniform interchangeable thread by ordering "Perfecto".

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Galt - Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

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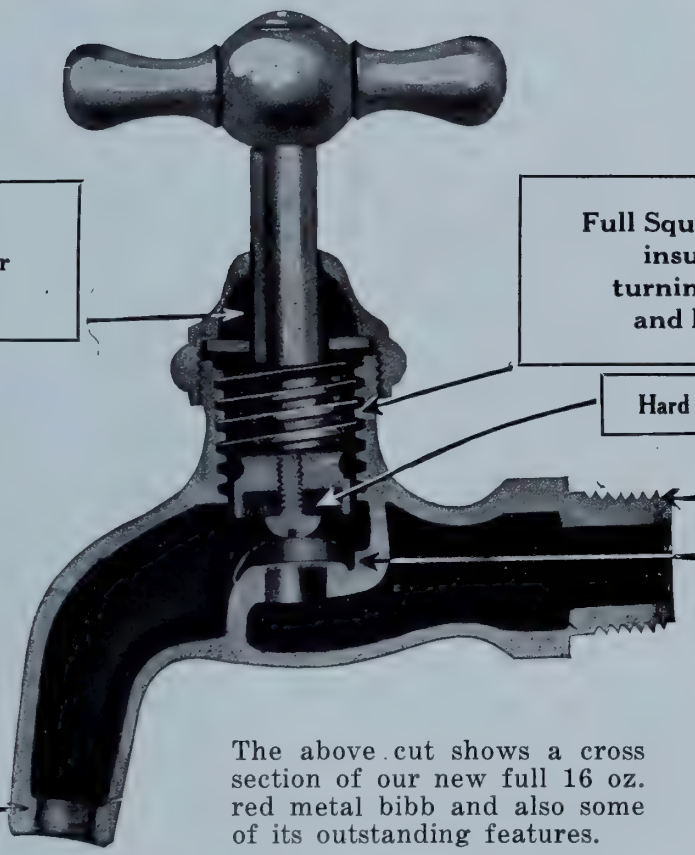
Durable Anti-Splash EMPIRE Bibb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Full Square Threads insure easy turning of stem and long life
Hard Rubber Bibb Seat
Full ½-inch Tapered Thread
Raised Seat gives full ½-inch waterway
Anti-Splashing Spout Throws a Straight Stream

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When buying specify our lines carried in stock by the largest and most progressive Jobbers in Canada.

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A Beaver Brand Pedestal
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A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

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TALK No. 261.

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that we live in Canada, where conditions are so much better than anywhere else that it's a

"Little Bit of Heaven"

Longer Hours
Harder Work

Less Wasted Time and Money

is what is needed. If Canada can keep on sanely while the rest of the world goes crazy, we certainly will shine when the day of reckoning comes—as it surely will.

TINKER TOM.

DOMINION SHEET METAL CORP. LTD
MADE IN PREMIER CANADA
HAMILTON, CANADA.

Look for Talk No. 262.

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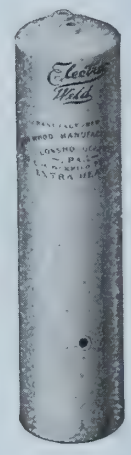
Electric Weld

Extra Heavy *150 pounds Working Pressure*

RANGE BOILERS

Made in Canada



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The trap that keeps the radiator hot

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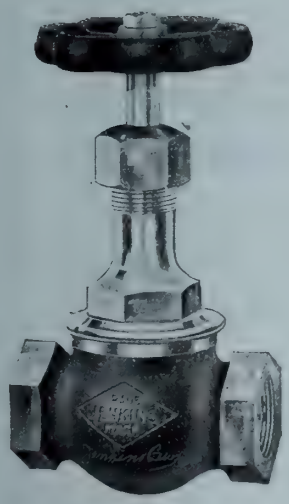

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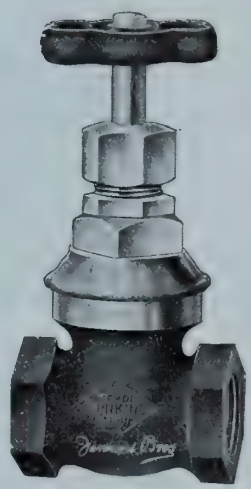

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A Little "Straight Talk" to the Canadian Plumbing Trade

When Canada decides to do something she usually does it with a whole heart and a single purpose. That is the way we went into the Great War. We said then that we were in to stay to the finish, to the last man and to the last dollar. Some people, naturally, do not take kindly to the "last dollar" idea; they think the Finance Minister intends to collect that particular item of currency. The word "taxation" is in most people's mouths to-day.

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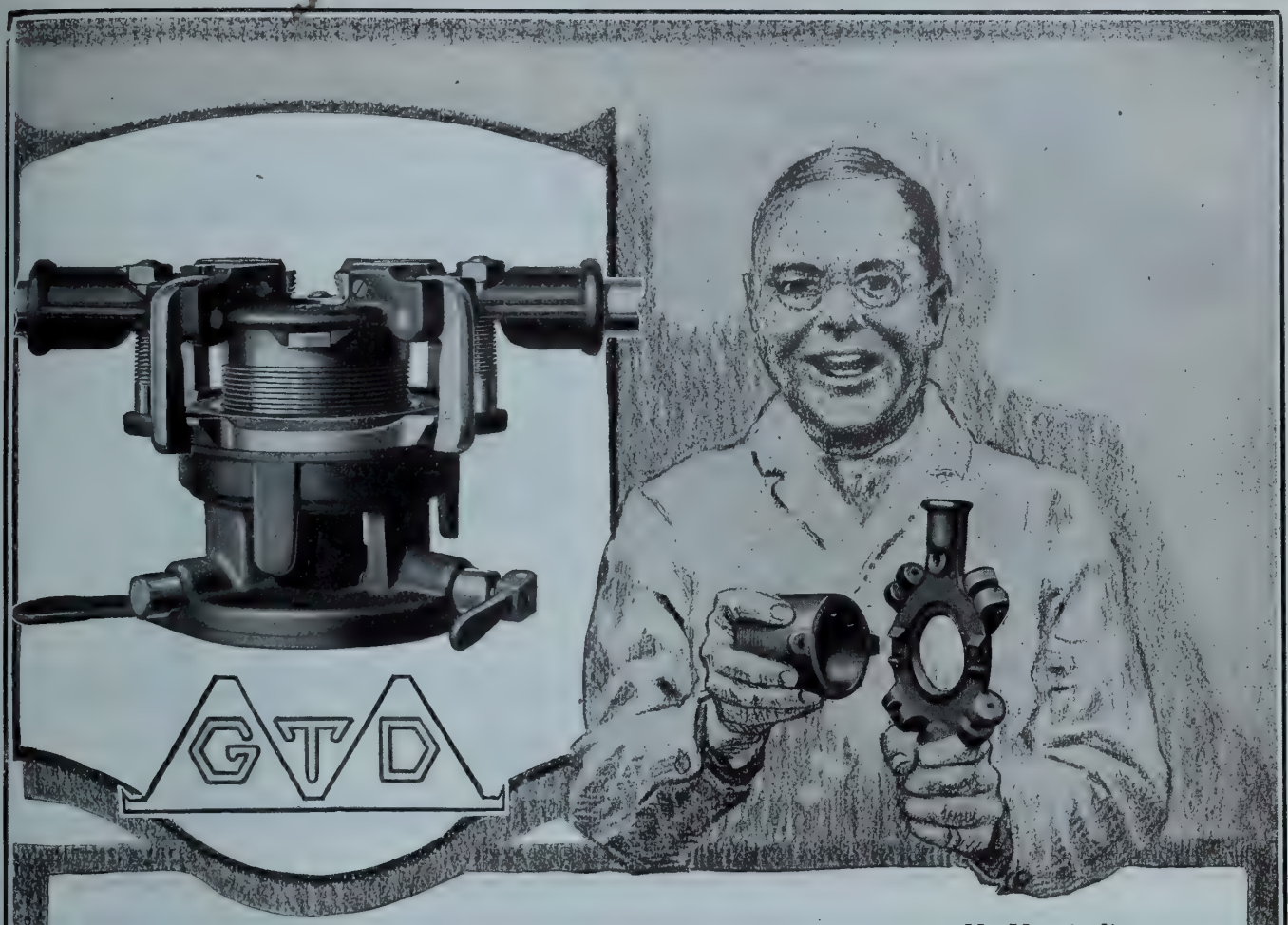

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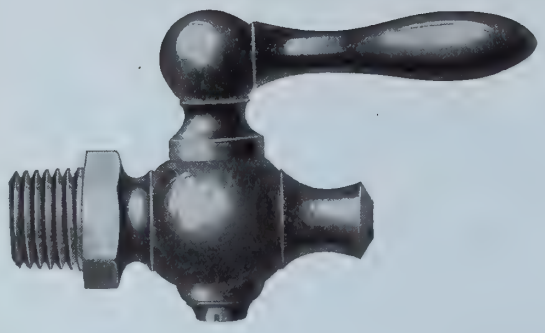

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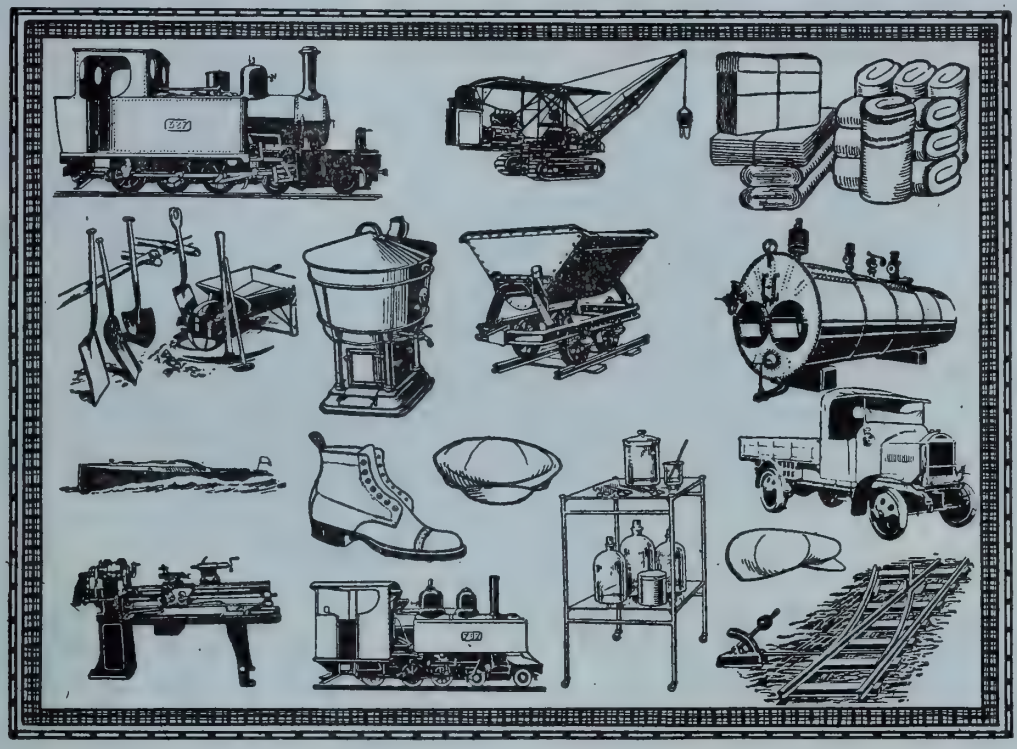

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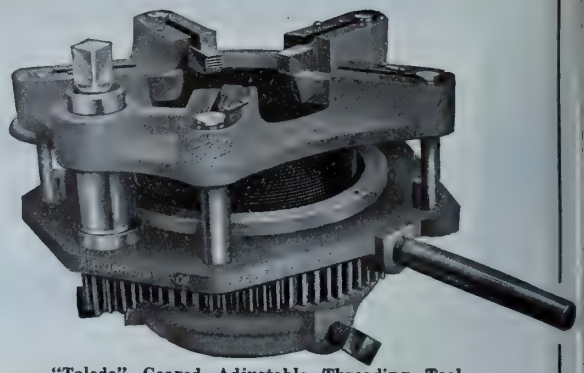

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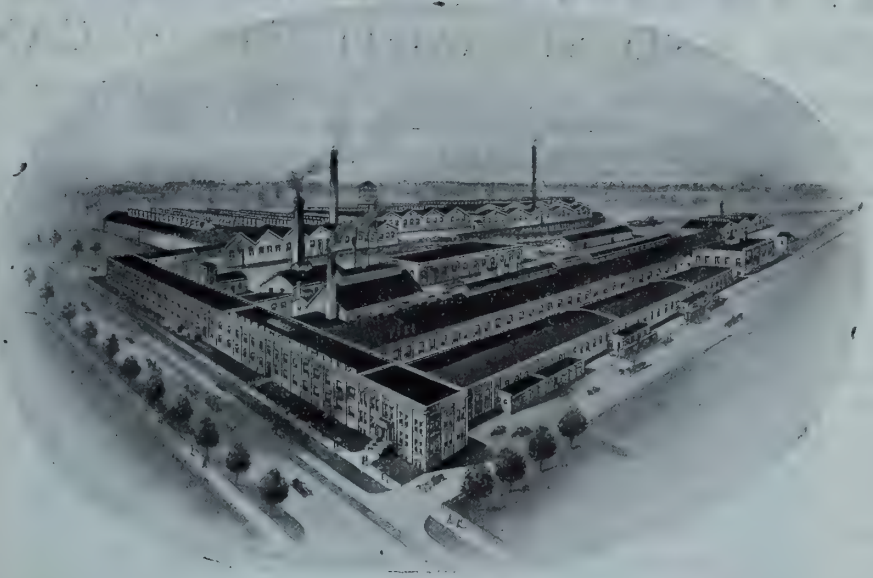

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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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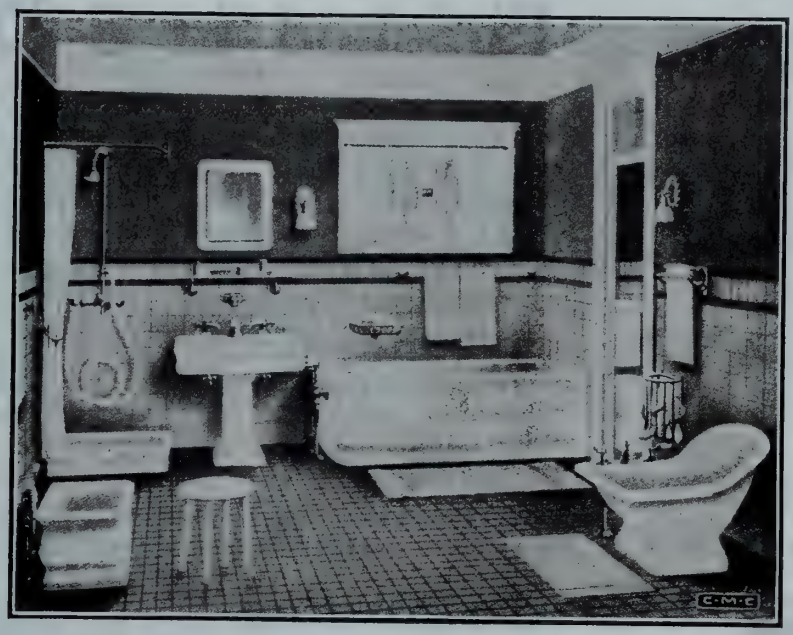

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For leaks too wide to be bridged by a liquid, fill the opening with Norwesco Iron Cement—the quick, drying metallic paste. Then add Boiler Se-Ment-Ol to the water for sealing the smaller crevices and cracks around and at the edges of the large leak.

Letters which have reached us from many steamfitters and plumbers using Boiler Se-Ment-Ol to locate and repair leaks in new installations indicate that it is saving them, on an average, one-half day per week. In short, they practically save the Saturday forenoon—do five and a half days' work in five days.

Now, instead of losing valuable time tearing down boilers to locate leaks that frequently develop in new installations, and spending several hours to repair these leaks, they simply add the necessary quantity of Boiler Se-Ment-Ol, exactly the same as you have used it in the past for repairing old, leaky boilers.

Boiler Se-Ment-Ol will quickly find all leaks in the boiler and water line—loose threads, faulty valves, bad gaskets, leaky joints, sand-holes, etc.—and repair them quickly and surely. No odor or foaming.

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REPAIRS LEAKS IN HEATING SYSTEMS QUICKLY AND PERMANENTLY
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THE NORTH-WESTERN CHEMICAL CO.

1806 State St. Marietta, Ohio.

Gentlemen:—Please send me your special discounts and the name of the nearest jobber who sells **Boiler Se-Ment-Ol.**

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Established 1907 Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO, JUNE 1, 1920 No. 11

Plumbers Escape Turnover Tax; New Taxes on Electrical and Household Goods Now in Effect

Excise Taxes Levied on Chandeliers, Electrical Appliances for Use in the Household But Not on Lines Entering Into House Construction or Finishing—Turnover Tax to Be Paid Only by Manufacturer or Wholesaler.

OTTAWA, ONT.—New tax legislation affecting many lines sold through the plumbing trade are now in effect, as outlined in the budget, as presented by the Minister of Finance. The levying of one per cent. tax on all sales of manufacturers, wholesalers or importers, but not retail dealers, unless they are direct importers, excise tax running from 10 to 50 per cent. upon certain articles; increase of 5 per cent. in income taxation over $5,000; stamp taxes on promissory notes, bills of exchange and stock transfers and a license fee of $2 on every business man dealing in lines mentioned to carry on excise tax, are the chief points of interest to the trade. The only relief in sight is the wiping out of the 7½ extra war tax on all remaining lines and the increase in business profits exemption from 7 per cent. to 10 per cent.

Excise Tax on Electrical Appliances

An excise tax of 10 per cent. is imposed on the total purchase price of plated ware as adapted for household or office use. This includes a wide range of household articles such as electrical devices, including irons, toasters, grills, percolaters, etc. Officials of the Canadian Manufacturers' Association do not interpret this tax as applying to plated or other ware which enters into the construction or finishing of a house, but merely on articles that are for use therein when completed.

An excise tax of 20 per cent. applies to the total purchase price of chandeliers (except for use in churches). This tax includes all electroliers, gasoliers and other candelabra having two lights or more.

All the excise taxes enumerated are to be charged by the retailer when selling the goods to go into consumption. The tax is the percentage named of the sale price and is added on the invoice as a separate item as a luxury tax. Bills should be made out in triplicate, one copy of which is kept to be turned over to the Inland Revenue Department twice monthly. Returns of the amount of tax collected along with a copy of each bill showing the sale of the article and amount of tax, are to be sent to the nearest collector of taxes on the 1st and 15th of each month by retailers, and once a month by wholesalers and manufacturers.

AMOUNT OF TAX SHOWN ON SALES TAGS

Each dealer selling goods which come under the new taxes will show the price of the goods on the invoice and also the amount of the tax whether it be ten, twenty or fifty per cent. Two copies of the invoice will be made out, the dealer keeping one, to be later handed over to the Inland Revenue Department which in turn collects the money as represented by the invoices.

Thus anyone buying a $50 article will get a bill reading "To (name of article) $50. To luxury tax 10 per cent. $5. Total $55."

The Turnover Tax

The 1 per cent. on turnover is paid only by manufacturers, importers, and jobbers. This tax is indicated separately on invoices, and the plumber, when he accepts a shipment of goods billed in this way proceeds in the usual manner, absorbing the tax into the cost of the article and adding the excise tax when the article is mentioned in the list of those carrying such a tax and adding nothing if no excise tax applies.

The plumber has nothing to do with the 1 per cent. turnover tax unless he is acting as a wholesaler or importer. The excise tax on the articles mentioned is all he needs to figure on and the procedure as outlined is very simple in such cases.

Every person selling or dealing in the articles upon which the above taxes are imposed may be required to take out an annual license therefor which will not exceed $2.00.

Effective From May 19

The provisions as outlined are deemed to have been in effect from May 19th of this year and to have applied to all goods mentioned therein imported or taken out of the warehouse for consumption on and after that day, and to have also applied to goods previously imported for which no entry for consumption was made before then.

Lines Exempted From Excise Tax

Many lines of foodstuffs, coal, artificial limbs, etc., are exempted from the excise tax. These also include grains and seeds in their natural state; cattle foods, etc. The exemption also applies to lines exported.

Stamp Tax on Promissory Notes, Etc.

A stamp tax of two cents is imposed on promissory notes, bills of exchange, of the value of one hundred dollars or less, and a tax of two cents additional is imposed on every one hundred dollars or fractional part thereof in excess of one hundred dollars.

New Income Taxation

Amendments to the Income War Tax Act provide that the taxes and surtaxes including tax upon corporations and joint stock companies shall each be increased 5 per cent. on incomes over five thousand dollars, such increases to apply to taxes leviable for the period of 1919. Each person so liable is required under the new legislation to forward to the Minister of Finance with each annual return of his income, an amount equal to at least one-fourth of the amount of the tax and surtax, and shall pay the balance if any, in not more than three bi-monthly instalments with interest at the rate of 6 per cent., together with interest at the same rate from the date prescribed for making the return, up to the time of payment of the instalment.

A provision for the payment of interest at 10 per cent. upon the total amount is made where a person makes a return of income less than the correct amount.

Amendments to the Business Profits War Tax provide that the profits earned in any business during any accounting period ending in the year 1920 which do not exceed ten per cent. per annum upon the capital employed

Continued on Page 18

Retailers Must Keep Own Sales Records

No Luxury Stamps to be Issued—Retailers Must be Able to Verify Returns—Application of the Turnover Tax—Some Technicalities Cleared Up

DURING the past week scores of official rulings have been handed out by the Government in regard to the application of the tax. For one thing it has been made clear that the Department of Finance does not propose to issue luxury stamps. Retailers are told they must use their own discretion in keeping records of sales and should be able to verify their returns by affidavit and proof, if necessary. Local officials say that retailers who neglect to keep reliable evidence of their sales since May 19 make themselves liable to prosecution. No advice is offered as to how best records should be kept.

The plan being followed in a number of cases for keeping a record of taxes is to make out an invoice for each sale in triplicate with the amount of the tax shown as a separate item. Returns are to be made to the Government twice monthly together with one copy of each invoice as showing the amount of the tax. In cases where a retailer is of the opinion that showing the amount of the tax separately might interfere with sales he is authorized to include the amount of the tax with the sale price of the article and enter it on the invoice as the name of the article and "including luxury tax." One dealer stated that customers already had shown a willingness to pay an inclusive price, while they objected to paying the retail price plus the tax.

Turnover Tax Applications

Regarding the 1 per cent. turnover tax to be charged by the wholesalers, some rulings under this heading are as follows:

The 1 per cent. sales tax to be charged by the wholesalers was much discussed. Some of the rulings on this head were:

(1) Tax was applicable on cash discounts.

(2) Tax does not apply on articles sold for export.

(3) Specified luxuries sold by wholesale houses to contractors subject to 1 per cent. sales tax as well as luxury tax.

(4) Goods delivered on May 19 or after subject to tax, irrespective of when contract was made.

Technicalities to be Considered

Some technicalities on which the Government has promised consideration are:

(1) That a contractor who builds a house or a merchant tailor who builds a suit are technically manufacturers.

(2) That small cash sales in wholesale houses may be reported in some other way than by copies of invoices, which might be difficult to produce.

As regards the taxing of luxuries on the sale direct to the consumer, many questions asked have brought the ruling that goods may be reduced in price to exempt them from tax. "One of the objects is to reduce the cost of living," says the Government.

Another ruling was that vendors were responsible for the payment of the tax to the Government.

Standing of U. S. Railways Under Government Control

THE people of United States had a very practical demonstration of what could be made out of so complicated a utility as a railway system.

The Government controlled the roads. They raised passenger and frieght rates enormously, and then lost money in millions.

Here is what happened in an average month of 30 days:

"The earnings of 17½ days of each month were paid to labor in wages.

"The earnings of 3 days were paid for fuel.".

"The earnings of 5 days were paid for materials and supplies.

"The earnings of 1½ days were paid out for taxes and equipment and facility rents.

"This consumed the earnings of 27 days of each month.

"The earnings of the remaining 3 days went to net operating income and were used by the Government to pay the guaranteed standard return to the companies. The net operating income was insufficient for this purpose and in consequence there was a direct levy on the Government to meet the deficit."

Six Weeks to Normal Operating After Strike Ends

Dealing with conditions resulting from the U. S railroad tie-up 'The Iron Age' says: "With the immediate cessation of the strike it would take six to eight weeks to approach the operating pace of March. The present natural stagnation in business is not accompanied by any price softening as would normally occur under such a condition, for besides full order books, a slump in buying will be offset by the necessarily gradual resumption of the mills. It now appears that there are 1,300,000 tons of finished products in yards and warehouses in the Pittsburgh district alone, that the leading interest has probably 600,000 tons of unshipped material, and that in the whole country the undelivered manufactured steel is not far short of 2,000,000 tons."

Must Have Sanitary Closets and Garbage Pails

St. Catharines—The Board of Health announced a strenous fight against all and sundry offenders against the Health Bylaws.

The Board is going right after these persons particularly:

Those who neglect or refuse to obey the law by providing proper receptacles for manure

Every person who does not forthwith provide a covered metal garbage receptacle. Too long has the use of old wooden boxes for this purpose been permitted.

Those persons who still persist in the use of the malodorous outside closet.

Will Not Form Part of Steel Merger

The James Smart Manufacturing Company, one of the three companies which was included in the Canada Forgings merger, but which will not form part of the British Empire Steel Corporation, like the other two units, has been capitalized at $2,000,000, and will continue operations as a separate concern. It is expected in the Street that along with the exchange of securities for those of British Empire Steel, according to the arrangements recently approved by the board, proportionate amount of shares of the Smart Company will be distributed as representing their interest in the business.

Now Incorporated in Nova Scotia

Ottawa, Ont.— Announcement has been made that the British Empire Steel Corporation has secured a charter from the Province of Nova Scotia. It is now suggested that the merger may not press its application to the Federal Government for letters patent increasing its capital stock to $500,000,000. The company, in view of its large capitalization, would be required to pay the Dominion Government a fee of $100,000. It is said the fee charged by the Province of Nova Scotia amounts to a considerably smaller sum.

An automatic temperature regulator has recently been placed on the market by Charles Engelhard, 30 Church Street, New York. By means of a motor and suitable gearing a slotted link, adjustable to different strokes, is caused to oscillate, and by the action of two electro magnets in circuit with a pyrometer, a shaft is revolved in one direction or the other, depending on the magnet in action, so that the control valve may be opened or closed according to the temperature desired.

Questions and Answers on New Taxes

Many Interesting Points Raised by Sanitary Engineers—Government's Interpretation of New Taxation Clears up Much Confusion as to Procedure and Articles to be Taxed

AS MANY points have been raised by plumbers in connection with the application of the new taxation, and on taking up these matters with the Department of Inland Revenue, SANITARY ENGINEER has secured much information of value to the trade For this reason herewith are reproduced a series of questions and answers based on the Government's interpretation of the taxes. The answers given will clear up a great many points on which there has been much confusion:

* * *

Plated Ware

Question.—What constitutes plated ware?

Answer.—Any plated ware whatever, in so far as it is for use in the household or office. This is interpreted as applying to electrical appliances, safety razors, cutlery, and all such articles for personal or table use. It does not include plated hardware entering into the construction of the office or house such as builders' hardware, but electric and gas fixtures are taxable under a special section.

* * *

Deposit Ware

Question.—What is deposit ware?

Answer.—Deposit ware consists of articles for table or household use on which a pattern in gold or silver is deposited on the glassware or china.

* * *

Imitation Goods

Question.—Are imitation goods taxable as the genuine article?

Answer.—Yes. Imitation goods where the name of the genuine article is used such as in ivory goods, is taxable in the same category as the genuine article. Same applies to composition goods such as composition ivory billiard balls.

* * *

Tax on Solid and Plated Ware

Question.—What is the relation between the tax on solid and plated ware?

Answer.—Special taxes are outlined for either solid or plated ware, the former carrying a higher percentage than the latter.

* * *

Chandeliers

Question.—What articles are included as chandeliers?

Answer.—All ceiling electroliers, gasoliers and candelabra having two lights or more are subject to the 20 per cent. excise tax.

* * *

Tax Not Returnable When Goods Exported

Question.—I am a manufacturer and pay a 1 per cent. tax on materials imported and used in producing other materials subsequently exported. Will I be permitted to refund to myself the amount of the tax paid in the first instance.

Answer.—To this the Government answers that the sales tax is not applicable to goods exported. This does not answer the question completely but it is evident that once the tax is paid it is not returnable.

* * *

Contracts for Future Delivery

Question.—Manufacturer has a signed contract to deliver quantity of gramophones at stated prices to include the tax. Can he compel customer to take delivery at contract prices plus additional ten per cent., or would he be allowed to fill old contracts without adding present additional tax? Are gramophones sub to one per cent. tax in addition to the 20 per cent.

Answer.—Increased tax on gramophones came into effect and applied to all shipments by manufacturers made after the 18th. One per cent. sales tax also applies.

* * *

Tax Invites Cancellations

Question.—Our business is all done by orders placed in advance. Having new tax invites cancellations of contracts. Must we add percentage under these conditions?

Answer.—Sales tax in force on goods delivered after 18th.

* * *

Tax on Small Sales

Question.—What tax is payable on individual sales by manufacturer or wholesaler where sale price is fraction of one dollar, as on small sales to plumbers?

Answer.—Customs practice prevails.

Tax on Automobiles

Question.—Is 15 per cent. tax on autos in addition to the present 10 per cent., or instead of it?

Answer.—Fifteen per cent. on automobiles supersedes former 10 per cent. tax.

* * *

Shipments on Standing Contracts

Question.—We have contracts made early this year with deliveries during this year. Do we charge 1 per cent. on shipments made on this contract from now on?

Answer.—Shipments made after 18th instant are liable to sales tax.

* * *

No Tax on Exported Goods

Question.—Presume new taxes do not apply upon instruments exported to foreign countries?

Answer.—Excise tax not applicable to pianos exported.

* * *

Retailer Liable as Wholesaler for Turnover Tax

Question.—Are sales of plated ware to hospitals, hotels, steamships, railway companies, restaurants, institutions, etc., to whom we sell wholesale prices, subject to 1 per cent. tax, the same as other wholesale orders, or does the 10 per cent. tax apply? If so, do both?

Answer.—Both luxury and sale tax are payable.

* * *

Ruling as to Tax Collection

Question. — Advise if wholesalers should collect one or two per cent. from retailer on all taxable sales. If we only collect one per cent. and pay that to the Government and pay one per cent. to manufacturers on all goods purchased by us we will lose one per cent. Seems to be misunderstanding on this point. Can you remove it? Is tax to be levied once or twice on same goods on passing from manufacturer to wholesaler and thence to retailer?

Answer.— Tax applicable to both manufacturer and wholesaler unless absorbed. Tax must be shown separately on invoice from manufacturer to wholesaler and on invoice from wholesaler to retailer.

* * *

Not Included in Cost

Question.—We are manufacturers and sell to dealers and jobbers only. Are we permitted to absorb the one per cent. tax or pay same ourselves to the Government?

Continued on Page 18.

QUESTION LEGALITY OF TAXES

Legality of the collection of "luxury taxes" before the Drayton budget is approved and finally passed by the House of Commons is questioned by many Toronto dealers.

"How can the Minister of Finance, merely on his own 'say-so,' impose this tax of 10 or 20 per cent. and insist on its collection before the House has come to a decision? Is Parliament running the country or is Sir Henry Drayton?" asks one dealer.

"Of course, it is a Government measure and it is reasonably certain that it will be carried," said one official. "That is why it is done. And, of course, the Government can make the tax retroactive. The objection is a technical one, but there's something in it."

Object to Duplication of Turnover Tax

Manufacturers and Wholesalers Dissatisfied With Vagueness of Tax Orders When Selling on Term Basis, Tax Will Have to be Advanced in Full by Vendor—Where Are the Mail Order Houses?

Montreal.—The budget still holds the interest of business men in this important commercial and industrial centre. Opinions and comments are very diverse. There is one respect in which most expressions and comments agree, and that is as to the vagueness of the orders. It is difficult, seemingly, for manufacturers, jobbers and wholesalers, and for retailers, too, to know just where they are at. Some have been hesitant about making a definite move, though SANITARY ENGINEER finds, upon investigating the matter, that manufacturers, jobbers and wholesalers are adding the one per cent. to invoices, and have been doing so since May 19. In the absence of more definite particulars from Ottawa, however, a great deal of dissatisfaction has been expressed, and the earlier the mist is cleared away, leaving the situation and unrest in business circles.

Perhaps the best summing up of wholesalers and manufacturers was made at a meeting of the Montreal section of the Canadian Manufacturers' Association, held on Tuesday of this week, when action was taken in connection with drawing up resolutions and sending a delegation to Ottawa. At this meeting the members present expressed themselves frankly, and a general expression of views is being asked from members of the association.

Duplication of Tax

One of the great objections is that of the duplication of the one per cent. tax. As a matter of fact it was brought out at this meeting that the Government, apparently, had not intended that there be a 1 per cent. tax on imports. Asked as to this, some members expressed their belief that the Government had seen an opportunity of augmenting the revenue still more by the application of such a tax, and that this would be imposed. Added several times to invoices that were naturally larger, as goods passed from one hand, or rather from one dealer to another, it was argued by several members that the tax would total a very considerable sum, multiplied as it would be.

Another point brought out was that wholesalers and manufacturers, selling on a term basis, would be required to finance the one per cent. tax until the maturity of an invoice. While it was generally agreed that the Government had to raise revenue, exception was taken to financing the tax charges in this way. Apparently no provision was made for deferred collection of this tax; it was payable at the time of sale.

Where the Mail-Order House?

"Where does the mail-order house come in? Are they classed as manufacturers? Are they in the manufacturers' class?"

These questions were asked SANITARY ENGINEER by the representative of a large Canadian manufacturing firm. That is the point. How will they be diagnosed? There is no question but that these mail-order houses are manufacturers. Will they be so considered for the purposes of the budget? In fairness to the various branches of the trade these houses ought to bear, and must bear, their share of the imposed taxes. A defining of the points is eagerly awaited by the manufacturing and other branches of commercial and industrial business. A definite ruling will doubtless soon be made.

Among comments made by members of the C. M. A. at Montreal, the following are of interest:

J. Chesney, manager of Almy's Ltd., speaking on behalf of the St. Catherine Street retailers, pointed out the hardship which would result to dealers who gave four, five or six months' credit, if they had to pay the tax within fifteen days of delivery of the goods, and suggested that the association should demand of the Government that they interpret "consummation of the deal" as the actual payment of the bill.

M. Hirsch expressed the opinion that the Government had not originally intended to make the one per cent. tax so extensive, but subsequent enquiries as to whether it had to be paid on imports, whether it was payable on repeat sales, etc., had shown the authorities a way of getting more out of it than they originally intended.

W. P. Downie made some rapid calculations to show the enormous amount of tax which would ultimately fall on an article which paid one per cent. sale tax three or four times, each time on a bigger invoice, and finally ten per cent. or more luxury tax. G. D. McKinnon also spoke of the repetition of the one per cent. tax.

L. Latourneau, M.P. for Quebec East, suggested that the 10 per cent. tax should be collected from the manufacturer instead of at the time of the retail sales, as the latter system imposed a most expensive accounting system on the retailer.

Canadian Wholesaler at Disadvantage in Selling Imported Goods

"The one matter that appears to us to be unreasonable is that in selling imported goods the Canadian wholesaler is put at a disadvantage in comparison with manufacturer or merchant in the country from which goods would be shipped, as the buyer here purchasing from shipper in U. S. or other country would pay only the importation tax, whereas the same material, if purchased through a Canadian concern, would pay both the importation tax and the 1 per cent. on the sale made in Canada," said Mr. F. B. Leslie, of A. C. Leslie & Co., Ltd., to SANITARY ENGINEER. This affects us and other people in the same line of business as we are selling here on our own account in direct competition with U. S. producers. It also in the same way puts a responsible concern like ourselves who handle such transactions on their own account at a disadvantage compared with the small broker or agent who can sell only on commission and whose material would be invoiced direct by the producer or principal outside of this country."

WHAT ABOUT MONEY COLLECTED IF TAXES NOT APPROVED

"Suppose that some of those taxes proposed by Sir Henry are not approved by the House. Suppose that some of them are even modified. In the meantime the tax has been collected from thousands of people," said one dealer. "It is in the pockets or cash boxes or bank accounts of the dealers. They cannot, in the majority of cases, trace back where they collected the tax. Where does that tax go? Imagine the amount of luxury tax collected by our big department stores, without the name and address of the customer being taken, and think of the impossibility of returning that tax to the people who paid it! If anything happens the Drayton budget, if it is altered in any way, it is the consumer who is stung."

Dominion tax officials were asked about this argument. They admitted it.

U. S. Railways Again Controlled by Government

War-time regulations, governing the operation of all the railroads of the United States have again been put into effect.

The nation-wide car shortage, resulting in a threatening situation, even to the extent of transportation of food and fuel, has made centralization of railway management, under Government control, a vital and immediate necessity.

Under the new railway law, the Interstate Commerce Commission will put into effect the following extreme control measures made necessary by the car shortage and requested by the railroads themselves in a petition.

Priorities on shipment of necessities.

Export embargoes to conserve food and fuel.

Diversion of traffic wherever necessary.

Joint use of terminals and interchange of equipment.

Who Collects the Tax and How Much?

(CLIP THIS OUT FOR REFERENCE)

Owing to the fact that there is considerable misunderstanding among the trade as to who collects the various taxes and the percentage charged, the following table outlining the taxes on various goods will be helpful:

EXCISE TAX

(Taxes Payable by Retailer)

Tax on following articles to be charged by retailer when selling to consumer or on importation for consumption or use other than resale :

(10 per cent. tax) Trunks over $40; bags, suitcases, hat boxes, fitted travelling cases over $25; ivory-handled cutlery, cut-glass ware; sporting goods such as tennis rackets, nets, racket covers and presses, skates, snowshoes, skiis, toboggans, canoe paddles and cushions, polo mallets, baseball bats, gloves, masks, protectors shoes and uniforms, football helmets, harness and goals, basketball goals and uniforms, gold bags and clubs, lacrosse sticks, balls of all kinds, fishing rods and reels, billiard and pool tables, chess and checker boards and pieces, dice, games and parts of games (except playing cards and children's toys and games) and all similar articles commonly or commercially known as sporting goods in excess of 50 cents;

Plated ware not otherwise provided for as adapted for household or office use.

(20 per cent. tax). Ash trays, humidors and smoking stands; hunting and shooting garments and riding habits; hunting and bowie knives; gold and silver handled pocket knives and pencils; gold, silver, ebony and ivory toilet-ware; articles of silver not otherwise provided for as adapted for household or office use; silver or gold deposit ware.

Taxes Payable by Manufacturer

Tax on following articles to be payable by the Canadian manufacturer in addition to customs duties at time of sale. Also when imported, but not when exported.

(10 per cent. tax) Boats, yachts, canoes and motor boats (except when used for commercial purposes when refund of tax will be made), cameras weighing not over 100 pounds, firearms, shells, cartridges for use other than militia purposes, pianos and organs (other than pipe organs), musical instruments not otherwise provided for.

(15 per cent. tax) Automobiles for passenger use.

(20 per cent. tax) Mechanical piano-players, gramophones, talking machines, music boxes and records used in connection with any musical instrument.

Tax on Playing Cards

Tax on Playing Cards for every package of fifty-four cards or fraction of fifty-four; when selling at $25 or less per gross package—25 cents per pack; when selling in excess of $25 per gross package—fifty cents per pack.

License Fee

License Fee—Any dealer handling above lines may be required to take out annual license fee for which will be $2.00. (All above taxes taking effect from May 19th) (to apply to all goods mentioned which were imported or taken out of warehouse for consumption on and after that day and to have applied to goods previously imported for which no entry for consumption was made before that day.

THE TURNOVER TAX

Tax of 1 per cent. in addition to present excise and customs duties on sales by manufacturers, wholesalers or on importations. Purchaser to be furnished with written invoice of any sale, which states separately the amount of the tax when not included in purchase price. This tax not to be included in manufacturer's or jobber's costs on which profit is figured. Tax to be paid by purchaser to jobber or manufacturer and remitted to Government (penalty of $500).

Manufacturers and wholesalers may have to take out annual license (fee $5.00).

EXEMPTIONS:—Anthracite and bituminous coal is exempted from turnover tax on sales or imports.

(Turnover Tax was effective from May 19th applying to all goods imported or taken out of warehouse for consumption on and after that day and applying to goods previously imported for which no entry for consumption was made.

STAMP TAX ON PROMISSORY NOTES, BILLS OF EXCHANGE

Stamp tax of two cents on promissory notes and bills of exchange of value of $100 or less and two cent stamp additional for every one hundred dollars or fractional part thereof in excess of one hundred dollars.

INCOME TAXATION

Taxes and surtaxes including taxes upon corporations and joint stock companies is increased 5 per cent. per annum on incomes of $5,000 and upwards, to apply on all taxes leviable for income received during 1919 or any accounting period ending in 1919.

Persons liable for this form of taxation for the year 1920 or for any period ending in 1920 and thereafter are to furnish the Finance Minister with each annual return of his income, an amount equal to at least one-fourth of the amount of the tax and surtax, and will pay the balance in not more than three bi-monthly payments with interest at 6 per cent. per annum. Penalty is interest at 10 per cent. for incorrect statement of income.

BUSINESS PROFITS TAX

Exemption under this tax is raised from 7 per cent. to 10 per cent. On profits between 10 per cent. and 15 per cent. tax is 20 per cent. of profits; on profits between 15 per cent. and 20 per cent. tax is 30 per cent. of profits; on profits between 20 per cent. and 30 per cent. tax is 50 per cent. of profits; on profits over 30 per cent. tax is 60 per cent. of profits.

Incorporated business with capital between $25,000 and $50,000 pays tax of 20 per cent. of amount by which profits earned during accounting period ending in 1920 exceed 10 per cent.

WIPE OUT WAR TAX

The 7½ per cent. war tax on imported goods is wiped out on all remaining lines.

QUESTIONS AND ANSWERS

Continued from Page 15

Answer.—Tax must not be included in manufacturer's cost on which profit is calculated. Invoice must show separately amount of tax payable when not absorbed by manufacturer or wholesaler.

* * *

Tax Total Amount

Question.—In the case of goods on which a set amount of exemption is outlined, is the tax payable on the whole amount or on that amount which is above the exemption figure?

Answer.—In cases where the article sells at a higher figure than the stipulated amount tax is payable on the total cost of the article, not on the amount above the exemption figure.

* * *

Selling on Instalment Plan

Question.—How is the tax collected when selling goods on the instalment plan?

Answer.—When selling on the instalment plan the tax on the full amount must be collected with the first instalment. That is, the dealer must pay the full amount of the tax to the Government with the first instalment, and it is then up to him to make his charge for the amount.

* * *

When to Make Returns

Question.—When are returns to be made on taxes collected?

Answer.—All manufacturers, wholesalers and jobbers are required to make monthly returns on the first of each month.

All retailers will make their returns on the first and fifteenth of each month.

Takes Issue on London By-Law

London Plumber Points Out That Only Seven Out of Thirty Licensed Tradesmen Favored the By-law—Unqualified Plumbers Not Afraid of Regulations—Sanitary Inspector More Needed Than Plumbing Inspector

THE following letter dealing with the situation in London, Ont., has been received by SANITARY ENGINEER:

"Dear Sir,—Plumbing Inspector Jas. C. Young asserts that unqualified plumbers are afraid of regulations, which is unjust and false, as out of over thirty licensed plumbers of London, about seven favored the by-law, and five of them and the president of the Journeymen's local were on the committee of revision. On this, Chairman Saunders states, in the above-mentioned article, that there was not a practical plumber, and then says that five of the more practical firms stood for the by-law. These are the same ones on the committee of which he states the chairman was a dentist. This also is false, as Alderman Seabrook was chairman of the committee. Alderman Dr. Cunningham taking charge in the interests of the public, for which he deserves credit for the manner in which he handled it.

"When Mr. Young was appointed inspector the council asked him, as their plumbing engineer, to get out some rules to work by, and without asking the opinion of the trade or getting the latest information of up-to-date plumbing he took an old by-law, out of date, and added more drastic clauses, got it passed without the sanction of the trade or of the Provincial Board, and then started in to enforce. Then the trouble began. The by-law was repealed March 29, and a petition signed by most of the master plumbers and sent to the council for a simplified law similar to that passed by the United States Government in 1919.

"After most severe tests from April to October, which proved anti-syphon or re-seal traps even on high buildings up to 15 feet from the stock the best job, the most practical men in the trade have been installing this for years with the very best results, after learning that back-venting was not only expensive, but was a detriment to the job, and in place of being a vent added to the foulness as it would only be in a short time until it was choked up.

"There appears to have gone out from some irresponsible person the cry of unsanitary plumbing conditions in London which I do not believe to be true. Where will you find a smaller death rate than London has? While there are some poor jobs put in I think we can boast of as good a class of work as any place on the map, large or small. Any of the trade well know that there are far more unsanitary conditions in a number of buildings than any caused from poor plumbing, which requires looking after, so a general sanitary inspector is needed more than a plumbing inspector.

"Now it is to be hoped that the Provincial Board will look well into the matter before they finally pass any law, and get proofs of the best way as well as the least expensive, both being sanitary and substantial, thus allowing the every-day man to be able to have the convenience his more wealthy neighbor has.

"I would, with your permission, ask the opinion of the trade on these questions through your valuable trade paper. We could help each other as well as the public this way.

"Yours for economy and service,
"M. MERKLEY,
"520 Piccadilly Street,
"London."

RETAILER'S TAX RETURNS TO GOVERNMENT

Practically every retailer in Canada will have to make semi-monthly returns of sales made of the various articles named in the tariff resolutions, and of the so-called "luxury" taxes he has collected in this manner. This will entail making out of every sales receipt in triplicate, and the instruction of drivers of delivery waggons to make collections when delivering taxable goods to those who have ordered by telephone or at the store c.o.d.

One copy of the receipt for each sale will go in the semi-monthly returns to the local collector of the taxes, with a detailed statement of the amount due. There will have to be an army of inspectors appointed by the department, and a large number of business firms involved will have to secure more clerical help to get ready, add up and forward these returns. This is true as well of the manufacturers, wholesalers and importers coming under the sales tax, even though they have to make returns only monthly. The problem of making the returns, so far as the manufacturers, wholesalers and importers are concerned, has been greatly complicated because there is a list of goods which are exempted. Every line of goods handled has to be classified, and the sales made divided into a free list and one on which the turnover tax has to be paid.

Returns are made to the nearest Government Tax Collector.

Purchasing Agents to Go to Chicago

The Purchasing Agents' Association, of Toronto, held their regular monthly meeting at the King Edward Hotel, presided over by Mr. J. I. Nicholson. Mr. H. A. Harrington, fuel controller, spoke on the fuel situation.

PLUMBERS ESCAPE TURNOVER TAX

(Continued from page 13)

in such business, shall be exempt from the tax prescribed by the act. Upon any such profits exceeding ten per cent. and not exceeding fifteen per cent., there shall be paid a tax equal to twenty per cent. of such profits. Upon any such profits exceeding fifteen per cent. per annum, and not exceeding twenty per cent., there shall be paid a tax equal to thirty per cent. of such profits. Upon any such profits exceeding twenty per cent., and not exceeding thirty per cent., there shall be paid a tax equal to fifty per cent. of such profits. Upon any such profits exceeding thirty per cent. per annum there shall be paid a tax equal to sixty per cent. of such profits.

In the case of a business owned by an incorporated company, and with a capital of not less than twenty-five thousand dollars, and under fifty thousand dollars, employed in such business, there shall be paid a tax of twenty per cent. of the amount by which the profits earned in such business during any accounting period ending in the year 1920 exceeded ten per cent. per annum.

In respect to any business liable to taxation under the act, having a capital of less than fifty thousand dollars, the rates of taxation set forth in section 3 of the act, chapter six of the Statutes of 1917, shall apply in respect of the 1917 and 1918 accounting period if twenty per cent. or more of such profits have been derived from the manufacture or dealing in munitions of war or materials or supplies of any kind for war purposes.

The period during which the said act is to be in operation is extended for one year.

Wipe Out 7½ Per Cent. War Tax

There is a notice of a resolution which, in legal phraseology, wipes out all the provisions in the acts of 1915 and 1919 which imposed a seven and a half per cent. extra war tax on all imported goods. Last year many necessaries were excepted. Now the whole tax is wiped out.

Another notice is of a motion to provide that the provisions of the foregoing resolutions shall be deemed to have come into operation on May 19, 1920, and to apply and to have applied to all goods mentioned, "imported or taken out of warehouse for consumption on and after that day, and to have also applied to such goods previously imported for which no entry for consumption was made before that day."

AVERAGE CROP EXPECTED

London, Ont.—According to W. R. Yendell, a prominent local business man, who has just returned from the Canadian West, an average crop is expected by the farmers there this year. The season is a late one, but the farmers say the added moisture in the ground will more than make up for the time last in seeding. Money is not appreciably tight, Mr. Yendall says, and collections are good.

Heating and Ventilating

Boiler Capacities

Design the Prime Factor—Stack Temperatures —Ratings Based on Evaporation

Written for SANITARY ENGINEER by N. A. Kearns

(Editor's Note.—An introduction to this series of articles on Heating and Ventilating was outlined in December 15 issue of SANITARY ENGINEER. Owing to the illness of the author, N. A. Kearns, the series was interrupted, but it will now be continued, and each issue will contain an article of instructive and practical value. The series is arranged alphabetically to facilitate reference, and a number of interesting subjects will be dealt with).

At one time the majority of specifications for heating boilers set certain horse-power ratings as the measure for heating efficiency.

The reason for the choice of such a standard was in that the measure of evaporation required to exert a certain dynamic force being known, it seemed to be a comparatively easy matter to estimate the heat required in evaporating the water required in the generation of that force.

The tubular boilers used in power work were rated in capacity according to the areas of their grates and heating surfaces.

The specified horse-power of a boiler being in proportion to certain fixed standards of grates and heating surfaces prompted the heating engineer to look for like areas in heating boilers.

Not a Safe Rule

When the efficiency of a boiler is based on heating surfaces or grate areas, there is the danger of under-rating, or over-rating, boilers of peculiar construction.

When the grate area of a boiler is in excess of the requirements of the heating surfaces, a high stack temperature will result; thus, apparently, indicating some loss of heat by way of the chimney. On the other hand, when the heating surfaces are too large for the limited grate areas supplied, the resulting combustion of the gases will be more or less imperfect.

Design the Prime Factor

In the catalogue, describing a certain make of apparatus, there is a boiler listed as having a greater capacity than one of the other types illustrated in the same catalogue. The boiler with the low rating has considerable more heating surface than has the boiler with the high rating. However, the boiler with the high rating has more grate surface than the boiler with the low rating. Its heating surfaces are also arranged to better advantage than in the less efficient type.

Heating surface exposed to the direct rays of the fire are of greater efficiency than those that are some distance from the combustion chamber; nevertheless, the heating surfaces must not be so close to the fuel that they will check proper combustion. It is generally considered that the crown of the combustion chamber should not be within six inches of the fuel.

A well-designed grate will permit of better combustion than will a poorly designed one; greater depth of fuel may be placed on the superior grate and this, of course, will lengthen the time between firing periods. Ordinarily, the best depth for anthracite coal, in a hand-fired boiler, is considered to be from fifteen to nineteen inches. The fuel must not be placed so high that the space in the combustion chamber is reduced. There must be space in the combustion chamber for the proper mixing of the gases.

Stack Temperatures

Contrary to the generally accepted belief that a cool stack indicates high boiler efficiency, is our opinion that a low stack temperature may prove nothing but that some combustible is escaping by way of the flue.

We have seen men placing their bare hands on the smoke pipes of boilers, in the attempt to prove how little heat escaped up the flue. All of the time that they were doing this, the very color of the fire was indicating poor combustion.

Lacking an analysis of the flue gases, the understanding man would more likely believe that the cool smoke pipe indicated faulty combustion rather than heating efficiency.

A Safe Standard

Granting that heating surfaces and grate areas can not be used as standards with any assurance of definite results, we must look elsewhere for some basis on which we can rate the capacity of a heating boiler.

The only safe basis for a rating of boiler efficiency is the proof of what a certain type of boiler can do in the way of evaporating a certain amount of water with the consumption of a certain amount of fuel.

If the engineer who installs heating boilers had the necessary instruments for making evaporating tests, he could soon find out for himself just what type of boiler was the most suitable for his purposes. Lacking these instruments he must rely on the manufacturer's guarantee of evaporating capacities, or on the old standards of grate and heating surfaces.

Nearly all manufacturers now give in their catalogues the evaporating capacities of their boilers, and as the standard of evaporation is a standard that can be used directly for proportioning a boiler for almost any set of conditions, it is the standard most useful to the heating engineer.

When the manufacturers' catalogue gave the rating in square feet of cast iron radiation and we wished to use the boiler for some other purpose, it became necessary to estimate in a more or less haphazard way the condensation equivalent to the stated rating. When we are sure that the radiation rating is based on evaporating capacity we are enabled to estimate with the assurance of definite results.

Ratings Based on Evaporation

Boiler capacities based on evaporation are figured on the rate of an evaporation of 34.5 lbs. of water being equivalent to 138 square feet of cast iron radiation, and that on one pound of water thus evaporated is equivalent to 970 B.t.u.

Taking the figures as here given, we find that the efficiency of cast iron radiation is equal to 242.5 B.t.u. So we understand that if we proportion radiation at 255 or 275 B.t.u. per square foot we must not expect a boiler that has a rating based on 242.5 B.t.u. per square foot of radiator to be equal to the load of the more efficient radiation.

One thing we must be careful to ascertain, and that is on what basis the rating of the boiler has been made. The flat rating of condensation per pound of coal consumed per hour is the rating that we cannot go wrong with.

Evaporating Power of Coal

The evaporating power of a pound of anthracite coal may be taken as between 8 to 9 lbs. of water from and at 212 deg. Fahr.

Coal Capacity of Boilers

The coal capacity of the boiler is fixed by the grate area; the depth of the fire-pot, and the necessary surplus of coal

(Continued on page 34)

Seasonable Appliances Now Moving

Warm Weather Electrical Appliances Becoming Active—Labor-Saving in the Household is Strong Argument for Summer Trade—Rural and Farming Districts Present Big Field for Expansion, Says Authority—Implore Dealers to Avoid Technicalities in Sales Talk Over the Counter

WITH the approach of the warm weather there are a number of lines of electrical supplies which become specially active and which should therefore now come in for their share of publicity.

Labor saving for the housewife has been one of the strong arguments in the sale of certain electrical devices, and it is obvious that this argument is more imperative in the warm weather than at any other season.

If our forefathers could see the marvellous inventions of modern science for the elimination of drudgery from housework, and the emancipation of women from the toil of sweeping and ironing, they would have been indeed amazed. Yet this is not the only phase of the matter, for it is held by medical authorities that the introduction of electric appliances into the average home means better health for everyone through the elimination of drudgery and the cleanliness which is encouraged by simplifying such work.

In an effort to encourage the sale of such articles a model kitchen was constructed by a Hamilton plumbing merchant recently, to demonstrate electrical appliances. Among the many useful articles exhibited was an electric washer and ironer. These were shown in the model laundry. The kitchen was constructed with the idea of saving the housewife unnecessary steps and revealed the utmost efficiency. The stove was the combination type and was placed near the kitchen cabinet and close to the sink. The idea was to link up with "saving household labor" the saving of steps and thereby entail a stronger appeal to the housewife.

Housewives Appreciative of Comfort and Utility of Appliances

There is no question that housewives in Canada are daily becoming more appreciative of the comfort and convenience as well as the air of distinction which is given their home by the unstinted use of electrical devices. Especially is this the case with those for use on the table. Some dealers have received complaints regarding power connections for table appliances, it being found by many purchasers of toasters, chafing dishes, percolators, etc., that through lack of baseboard sockets they must use overhead fixtures. One trade authority advocates the installation of outlets on the table itself as a means of increasing the usefulness of electrical table appliances and doing away with unsightly overhead cords. The use of a portable serving table with wired connections has also been adopted in some homes.

With the aid of proper cookers in some homes meals are now being cooked right on the table. Particularly is this the case when the maid is out. The hostess by this means is enabled to preside and do her own cooking under most favorable circumstances and the food is served hot from the pan. The soup course is previously heated and brought to the table in thermos pitchers ready to serve. Plates are kept warm on the electric warmer so that the next course, which can be cooked at the table in the chafing dish, is served hot. On the small serving table is the grill and percolator.

Electric Fans Make Strong Seasonable Appeal

From the brief description given of the uses of the various electrical appliances, it is evident that any housewife would be proud to possess such articles for comfort and convenience. Displays showing these articles in use will often carry a strong appeal, for their value is not fully appreciated by a great many who, if once shown, would never be without them. Electric fans sell rapidly in the warm weather when demonstrated in an

Grand Showing of Electric Fixtures

I now have on display for your inspection, one of the most up-to-date lines of Electric Fixtures that it is possible to find. These Fixtures are made by the Tollman Brass & Metal Co. and are known throughout the Dominion for their superior quality, design and finish over the inferior kind that are being put on the market.

Now, if you plan buying Fixtures get TOLLMAN FIXTURES

which means quality, and don't be put off by any merchant saying "that theirs are just as good," because they are NOT and cannot be compared.

I have supplied some of the most up to date residences with Tollman Fixtures, not only in this town, but also in Fredericton, Moncton and Chatham.

If you want any kind of Fixtures made of your own design bring it in and I will send it to the Factory and have it made up for you.

Electric Lamps, Iron Heaters, Toasters. Dim-a-lights. Two Way Plugs, Shades in all designs and colors.

F. Uncles,

Plumbing and Heating Contractor

Newcastle, N. B.

LEST YOU FORGET

WE AGAIN SUGGEST

MAKE IT AN ELECTRIC GIFT

Electric Fixtures

TO SUIT ANY TASTE AND ANY PURSE

A most complete assortment of beautiful designs in fixtures and glassware.

Table Lamps

What is more decorative in a drawing-room than a beautiful Art Glass Lamp?

We have dozens of different designs. They are moving out fast, so make your choice early.

See The HOOVER ELECTRIC SUCTION SWEEPER beat... as it sweeps as it suction cleans

Give Her a "HOOVER"

—and Make Her Happy For Years

REMEMBER, THE HOOVER "BEATS" AS IT "SWEEPS" AS IT "CLEANS"

Our large sales and dozens of satisfied customers tell the tale. The most perfect cleaner on the market.

ALSO

—Percolators

—Toasters

—Irons

—Grills

—Vibrators

—Flashlights

And many other Articles

COWANS

THE BLUE FRONT STORE

Everything Electric and Plumbing

81 Colborne Street

PLUMBING COWANS BRANTFORD ELECTRIC

appealing manner—an achievement which is not difficult with such a seasonable line.

Then, too, electric power is being applied to sewing machines, assuring a rapidity of service hitherto undreamed of. The modern portable sewing machine weighs less than a packed suitcase and can be carried conveniently wherever one wishes to sew. Women who use them declare they get a great deal more work done with far less fatigue than by the old method. These machines not only simplify sewing but do dainty work and are capable of doing all kinds of sewing such as hemming and sewing on lace, edge stitching, etc.

Few Customers Know Points of Good Vacuum Cleaner

Judging by the large number of enquiries made by prospective purchasers of a vacuum cleaner, it is evident that the average individual has little conception of what constitutes a good cleaner. Here the dealer can establish himself by giving some practical information which will help the customer in choosing a cleaner. Tests for cleaning rugs can be carried out on a demonstration in the store.

It is doubtful is any electrical appliance will carry stronger weight with the housewife than the electric vacuum cleaner, for nothing is more desired by her than cleanliness in the home. Well she knows that sweeping rugs is drudgery and does not in the end do the job thoroughly. Also she knows that once or twice a year the rugs must all be taken ut and given a beating—more drudgery. But perhaps the strongest appeal for the use of vacuum cleaners is the fact that they clean rugs and carpets more thoroughly than any other device. Dirt cuts the nap and shortens the life of good rugs. It is therefore very necessary that they be cleaned thoroughly and often. Vacuum cleaners do all the work, supply all the energy and all the while, unseen, the dirt is being removed dustlessly from the fabric of the rug. To run the cleaner over the dining-room rug after each meal will pick up crumbs and food particles without injury to the rug and thus lengthen the life of the floor covering.

Farming Districts Offer Field for Expansion

The foregoing data deals with the sale of electrical appliances, which in the past, has been much larger in the cities than in the rural districts, but the latter districts and the farming communities present the greatest field for expansion in the sale of electrical appliances, according to the statement made recently by W. L. Goodwin, former vice-president and general manager of the Pacific States Electric Company. Mr. Goodwin stated that effort previously has been entirely devoted to the development of industry and to cities, while the farmer had never enjoyed the benefits that have accrued to the city man, but that in California the industry had practically covered the land with wires and it was surprising how the farmer had responded. He pointed out that one of the greatest faults had been that electrical men had been talking in technical terms, a fact which, he declared, had resulted in not one man in 50 having even a comprehensive conception of the hydro-electric development. He urged a language which would be understood by the public, otherwise, he said, the progress of electricity would continue to be greatly retarded through lack of proper understanding.

In co-operation, he said, the public always sensed some ulterior purpose, some effort on the part of the trade or industry to restrain trade and to raise the prices. That was not the intention, however. It was necessary that co-ordination be established.

"It requires a microscope to find electrical ads. in the papers to-day," he continued, referring to the inattention of the industry towards its retail aspect. Advertising, he argued, was one of the basic principles of business and they had so far attempted progression without attending to its foundation.

No Precedent to Act Upon

"The electrical industry is in the hands of a single generation," the speaker said. "We have no precedent to act on and we are going out into the wilderness. Occasionally we make mistakes but we are without that old conservatism in business." He referred to electricity as the basic matter of all industry.

Another matter which, unless remedied at once, would make necessary the reorganization of the whole structure of the electrical business, he said, was the standardization of electrical service not only in Canada but internationally. At present household equipment which was used in New York was of no use here owing to the difference in the voltage or the difference in the construction of the appliance. This matter, which would prevent a man taking his household electrical equipment to another part of the country with him, he said, causes the public to lose confidence. It would have to be remedied.

EDITORIAL COMMENT

ANTICIPATED REVENUE AND ITS SOURCES

THE Department of Trade and Commerce, in response to questions put up by the Montreal Guild of Wholesalers, has made a ruling that the one per cent. tax is to be applied to every sale. It must, therefore, be collected by the manufacturer from the wholesaler. The latter, in turn, when he sells to the retailer, must also collect a Sales Tax, so that in such cases the second one per cent. really makes the tax a two per cent. impost.

This method of levying the tax discriminates against manufacturers who do not maintain their own sales organization and are not in direct touch with the retailer. In the case of importation there will be similar discrimination against the merchant who imports to sell to the retailer, and in favor of the retailer who imports for his own store.

In some lines of business the tax will be three per cent. instead of one, for there are industries so organized that the factory output is sold en bloc to a factor, who sells to the wholesale traders, who in turn sell to the retailer.

The new form of taxation will provide a far greater revenue under these conditions than the amount generally estimated when Sir Henry Drayton's plans were announced. The imports for consumption in the year ending March 31, 1920, were valued at $1,064,516,000. Assuming that half of them were brought in by retailers and half by wholesale importing houses for resale, the revenue would be fifteen millions. There are, however, important lines of imported goods, to which the Sales Tax does not apply.

It is difficult to estimate the revenue which may be obtained from a Sales Tax levied in the manner prescribed by Ottawa, upon domestic products subject to the tax. It is reasonable to suppose that domestic products subject to the tax would have a value at least twice as great as that of imported goods. The taxable range of manufactured products may be from a billion and a half to two billions. The great bulk of the goods are handled through wholesalers, so that the actual taxation will be for the most part two per cent. on the value.

TAX PROVISIONS AFFECT PLUMBING LINES

NEW tax impositions, as outlined by the Minister of Finance in the budget presented this week and given in detail elsewhere in this issue, have a very important effect upon many lines in the plumbing trade. Excise taxes ranging from ten per cent. upward, are applied to a number of lines valued higher than a stipulated amount. In addition a sales or turnover tax of 1 per cent. is levied on manufacturers, importers and wholesalers. The plumber does not come in under this unless he is a direct importer.

The new legislation is so far-reaching that it is difficult yet to comprehend the full effect of the new taxes. As against the new impositions there has been an increase in the exemption for business profits tax of from 7 per cent. to ten per cent., in addition to which the 7½ per cent. war tax has been wiped out on all remaining articles which it affected. Opinions expressed by trade authorities are very divergent. Some are of the opinion that the consumer will pay the price without objection, while others fear the legislation is so radical as to seriously affect some branches of retail trade. If so, this would be more likely in some other trades than the plumbing, as the lines which form the basis of the plumbing business are not classed as luxuries and therefore will not bear the heavy excise taxation. The Minister of Finance has pointed out that tariff investigation is already under way and that public sittings will be held throughout Canada after prorogation. The new taxes affect a great number of plumbing lines. While at first glance the number of plumbing lines affected appears small in comparison with other lines, the fact must not be overlooked that the plumbing classifications include a wide and varied range of goods, on which higher prices may, of necessity, be expected almost immediately.

MANUFACTURERS' DIFFICULTIES

THE difficulties that are now being faced by many Canadian manufacturers are perhaps the most trying with which they have ever been confronted. The scarcity of many lines of iron

and steel products, together with freight and express embargoes, inability to secure electric power, strikes and other labor troubles, etc., have created a most trying situation.

Dozens of cases may be cited to show just how some of the manufacturers are up against problems at the present time. One manufacturer, employing moulders, whose rate of pay is exceedingly high, employs his moulders at present simply to break up scrap, in order to hold them and prevent them from going elsewhere. In the meantime his customers are clamoring for goods.

Another manufacturer who secures certain parts of his product from the United States, and who has been in the habit of getting these small parts in lots of two and three hundred pounds by express, is confronted with an embargo on both express and freight at the shipping point in United States, and he therefore has to depend upon small lots which are being shipped through to him by parcel post. The result is that large quantities of his product are being held up through certain small parts which are missing and which at the present time can only be secured in small quantities, owing to the paralyzation of shipping facilities in United States.

* * *

IT IS ALWAYS much more easy to condemn and criticize Government tax proposals than to suggest constructive alternatives. It is yet too early to approve or condemn the proposals of the Finance Minister. A great deal of explaining will be necessary before his proposals are fully understod.

* * *

THE MANUFACTURER evidently collects the excise tax, plus 1 per cent. sales tax. The wholesaler collects 1 per cent. sales tax and the retailer collects the luxury tax.

Predicts Continuation of High Prices

IN their weekly business letter, Hayden, Stone & Co., investment brokers, New York, have the following to say regarding general conditions:—

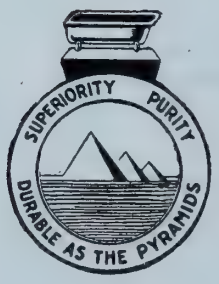
Whether due to a change in the psychological atmosphere, owing to reports of cancellations and to reductions in price by large merchandise retailers, or to badly crippled transportation facilities or to both, it has now become quite evident that there is a distinct recession in many lines of business. While such an interruption to progress of business as has been occasioned by the outlaw railroad strike is most regrettable, it has also furnished a greatly needed object lesson, which could, perhaps, be supplied in no other way—that no body of men employed in such a vital industry can quit work without seriously affecting great numbers of other wage-earners. The men who, without cause, went on strike, are to-day very justly most unpopular with men who have thereby been wholly or partly thrown out of jobs. The loss of wages, and, therefore, of purchasing power which this has caused, are beyond computation. The fact is that the transportation system of this country is at the best so inadequate, and has been still further so crippled by the action of these men, that even were all other conditions favorable, this alone would make it impossible to continue business operations at anything like the volume necessary to show the best results. Nor is this a condition that, even if the roads generally could command the necessary capital, could be remedied in a week or a month. It would take years to supply the equipment necessary to put the railroads on a basis where they could adequately serve the business of the country.

The point has been well made that there has never been an instance of any serious financial depression when there has been such a general scarcity of goods, but the difficulty in securing goods, owing largely to transportation conditions, is apt to blind one to the fact that productive capacity is probably well up, and, perhaps, in some lines exceeds consumption. The productive capacity of steel in this country to-day must be fully 50,000,000 tons. This is much greater than has been actually consumed in any one year. It seems doubtful if this great capacity could at the moment be profitably employed —certainly not at prices now ruling. The same is true of articles entering into clothing and manufacturers generally. Unfortunately, it is not true of food products. The movement of labor away from the farms has become alarming. This will in time be corrected by the lessening of pressure for labor in manufacturing industries, but this will take time, and, meantime, food products are bound to remain high.

The one outstanding and controlling factor today—not only in this country but throughout the world—is the shortage of capital. This is due to three causes: the destruction of capital in the war; the tremendous expansion of industry as evidenced by the great outpouring of securities in the last few years, and, finally, by the absorption in taxes of profits that would otherwise be available for enlarging business facilities. The fact is being brought home that there is a vast difference between currency and capital; that inflating currency does not increase the supply of loanable capital. It seems to us that this shortage of capital which, after all, is but a synonym for accumulated wages or savings, is bound to result in continued high rates, which of itself is a restrictive and deflating influence. This process of deflation through which we are now passing is disagreeable, but vastly to be preferred to the experience which Japan, for instance, has recently undergone. It will in time bring about its own cure, and, meanwhile, will present opportunities to those in position to take advantage of them.

TO our old friends, the delegates representing the Canadian Society of Domestic Sanitary and Heating Engineers.

WE welcome you to Toronto and extend a cordial invitation to you to visit us at our Toronto show-rooms at 119 King Street East, where Mr. A. D. MacArthur, the local sales manager, will be glad to welcome his old friends and show them all that is new in plumbers' enamelware.



Port Hope Sanitary Mfg. Company, Limited

Factory: PORT HOPE, ONTARIO
TORONTO SHOW ROOMS: 119 King St. East
WINNIPEG OFFICE: 405 Tribune Bldg.

Head Office: ROYAL BANK BUILDING, TORONTO
MONTREAL SHOWROOMS: 234 Beaver Hall Hill
HALIFAX OFFICE: McCurdy Building, Hollis Street

PORT HOPE SANITARY MANUFACTURING Co. LIMITED

SHOW ROOMS
TORONTO MONTREAL WINNIPEG VANCOUVER

HEAD OFFICE - ROYAL BANK BUILDING, TORONTO
FACTORIES - PORT HOPE, ONTARIO

Toronto, Canada.

May 28 - 1920.

The Sanitary Engineers of Canada,

Gentlemen:-

On the eve of the Twenty-third Convention of the Canadian Society of Domestic Sanitary and Heating Engineers we extend to you our Greetings and best Wishes.

There is no doubt that the majority of you are affiliated with the various plumbing organizations and that you derive benefit from them, but do you realize the advantages that may be obtained from the interchange of ideas as put forth by men from all parts of the Dominion when gathered in general convention?

Canada is now passing through a trying period of reconstruction. Present trade conditions would seem to indicate the existence of real prosperity, but these conditions are abnormal and must be readjusted before the country will come into her own.

Canada is on the threshold of a period of extension and development and nothing can prevent real prosperity. But, before she passes through the door there must be a readjustment, and its successful accomplishment rests with the people of Canada. Their actions will decide whether the process of readjustment will be sudden and severe or a gradual evolution.

Following the readjustment investors will again turn to building, better and more permanent homes will be constructed. THIS WILL BE YOUR ERA. Then will come the opportunity for the plumber who can render real service.

Now is the time to get together and plan the future of the plumbing trade in Canada.. Every plumber owes a duty to the Craft to take a keen interest in the proceedings of the general convention and those of his provincial and local gatherings.

To the delegates attending the convention and to those whose interests will there be served, we extend our best wishes for a most successful gathering.

Yours respectfully.

PORT HOPE SANITARY MFG.CO.LTD.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

Mitchell Half-Holiday

Mitchell, Ont.—Local merchants are to have a half-holiday on Wednesday afternoon from May 19 to September 15.

Plumbing By-Law in Port Dalhousie

Port Dalhousie, Ont.—A special meeting of the village council was held rerecently for the object of bringing into effect the same plumbing regulations that are now in force in St. Catharines, and the appointment of A. H. Jones of the village as the plumbing inspector.

Three New Pressure Filters

Chatham.—At a meeting of the Water Commission it was decided to install three new pressure filters in the waterworks plant to assist in overcoming the present difficulty in providing the city with a sufficient supply of water for domestic purposes. The commission is still considering a permanent solution to the water problem, but the new filters are necessary to meet immediate and pressing demands.

New Steel Mill

One of the largest recent developments in the steel industry of Central Canada is the construction of the structural steel mill by the Algoma Steel Corporation at a cost of approximately $7,000,000. This work has already been commenced in Sault Ste. Marie, and it will be completed within the next twelve months, according to the company's plans.

No Daylight Saving in Brampton

Brampton.—Daylight saving received a final knockout at the last meeting of the Town Council, when a petition with more than 700 names on it, including a large percentage of the merchants, was presented. A former petition favoring it had been submitted at the last Council meeting, and Mr. Davidson of the Pease Foundry was present to support it. In committee the Council passed the motion that daylight saving be not adopted.

Sarnia Must Abandon Old Pumping Station

Sarnia, Ont.—Herbert Sanders, chairman of the local Waterworks Committee, has received a communication from F. A. Dallyn, Provincial sanitary engineer of Toronto, stating that the George Street pumping station of Sarnia must be abandoned and a duplicate main constructed from Point Edward to the city to assure a continuation of the supply of pure water for Sarnia citizens.

In his letter, Mr. Dallyn says: "I notice from the tests which the fire underwriters make from time to time, that this supply is utilized for demonstrating how pressure can be made available. During these tests a great deal of filthy water is introduced into the city system. In the interests of the public health this is most inadvisable, and the operation of the old pumping station should be discontinued.

Extends Sanitary Area

Kingston, Ont.—The Board of Health has decided to extend the area for sanitary improvements to the city limits. Heretofore there has been a limited sanitary area bounded roughly by James, Pine and Victoria streets and the water's edge. Now all buildings in the city on streets served with sewers and water must install sanitary improvements. It is not thought there are many places without these improvements, probably not over one hundred. The greatest delinquents are said to be stores in the business section, some of whose owners are to be proceeded against after Sanitary Inspector Carson has consulted with the city solicitor. The Board of Health apparently is not going to wait any longer on the store owners.

Dominion Steel Corp. Output Increased

"The Canadian steel industry is reaping much benefit from increased British demand for rods, billets and wire products and from United States demand for wire nails and light rails," says the Daily Metal Reporter. "During January-March period, Dominion Steel Corporation produced 50,482 tons of pig iron, against 20,476 in October-December, 1919; 60,274 tons of ingots, against 34,761 and 10,029 tons of rods against 1,105."

Manufacture of Asbestos Pipes

Pipe made of asbestos and capable of bearing a maximum pressure of 450 lbs. per square inch is now being manufactured in Italy, according to a statement of the Bureau of Mines. The manufacturer is the Eternit Pietro Artificiali, of Genoa. The pipe, which is composed of 85 per cent. Portland cement and 15 per cent. asbestos fibre, is made in various sizes from 4 in. to 12 in. in diameter, and in lengths up to 12 ft. This thickness increases with the size from about ½-in. for the 4-in. pipe to about 15-16-in. for the 12-in. size. The pipe is seasoned under water for 90 days.

Asbestos pipe is much lighter in weight than iron pipe and is said to be acid and corrosion proof. The cost of manufacture is comparatively low.

Nearly a Million Dollars of Workingmen's Homes

London, Ont.—The London Housing Commission has loaned to the workers of this city for homes, since it took over its duties, the sum of $125,820. The commission has decided to ask for an additional loan of $400,000, making the total sum available for the providing of homes for workingmen $900,000. Loans from the $400,000 asked will run to home-seekers, between six and seven per cent. Loans made from the first sum secured $500,000 have been made to the people at five per cent. Work is being rushed on many houses, some of which will sell for as high as $5,000.

Rolling Mills President Dead

Montreal.—Thomas Esmond Peck, president of the Peck Rolling Mills, Ltd., died in Montreal at the Royal Victoria Hospital after an illness of two weeks.

The late Mr. Peck was only forty-one years of age, and was born in Montreal. Educated in England and at McGill, from which latter institution he left to join the Peck Rolling Mills, assuming the management on the death of his father, the late James A. Peck. The late Mr. Peck was a member of the Mount Royal, St. James, Royal Montreal Golf Club, and the Canada Club. A wife and seven children survive him.

Need 10,000 Dwellings

Dr. Hastings, M.O.H. of Toronto, in his monthly report to the Board of Health, once more points out the necessity of further housing accommodation.

"You will recall that in the report that I presented to this board in 1917, I drew attention to the fact that of 13,000 houses inspected by the department for the purpose of ascertaining approximately the degree of overcrowding in the city, 8,000 were found to be overcrowded. Four thousand of these were four, five and six-roomed dwellings, and were occupied by two families; 400 by three or more families, and 4,000 by lodgers, many of whom were utilizing lodging houses because they could not obtain other habitation," says the doctor.

He referred to the risk from communicable diseases through overcrowding, and stated emphatically that in Toronto alone 10,000 homes were needed immediately.

Interesting and Instructive Convention Planned

Officials of the Canadian Society of Domestic Sanitary and Heating Engineers Have Splendid Program for Twenty-third Annual Convention to Be Held in Toronto on June 8, 9 and 10—Prevailing Conditions Make Necessary Interchange of Ideas Among the Craft From All Parts of Canada

PLANS are now well under way in connection with the twenty-third annual convention of the Canadian Society of Domestic, Sanitary and Heating Engineers to be held at the Canadian Foresters Building, 22 College St., Toronto, on Tuesday, Wednesday and Thursday, June 8th, 9th and 10th, and an enthusiastic gathering of the craft from all parts of Canada is expected.

Under the present conditions of trade which are peculiar to the period of readjustment through which the country is passing, there are many trade problems arise on which concerted effort is required. At such times the interchange of ideas among delegates to such a convention are most valuable. It is therefore to be hoped that every part of the Dominion will be well represented. An invitation is extended by the officers of the Society to every plumbing and heating operator in Canada to attend the convention.

The program as outlined elsewhere in this issue calls for an executive meeting at 10 a.m. on opening day, Tuesday, June 8th, with the convention opening scheduled for 2 p.m. An automobile ride for the ladies has been arranged for the afternoon. The evening session is an educational evening to be presided over by the Toronto Ender Educational Clubs.

On Wednesday, at 9.30 a.m., reports of special committee, nomination of officers and the selection of the next meeting place will be the order of business. A conference with manufacturers and wholesalers will be held at 2.30 p.m., with annual banquet at the King Edward Hotel in the evening.

The election of officers will be held at 10 a.m. on Thursday, June 10th, and the convention will be concluded in the afternoon session.

Other arrangements are yet to be made and the program, when completed, will likely contain added features of great interest, and it is hoped the turn-out will be such as to justify the work which the officers of the society have done to make the sessions as interesting and instructive as possible.

BUSINESS ACTIVE IN MONTREAL

Considerable work has been undertaken in Montreal and the adjoining suburbs and cities, and this will accord a splendid field for activity during the coming summer. The city of Westmount plans to spend a considerable sum of money on various public works, and $200,000 has been set aside for the construction of new sewers and sidewalks. While a considerable portion of this sum will be used to develop the city of Westmount in the vicinity of the golf links, there will doubtless be a considerable amount of plumbing necessary after this work is installed.

Many of the plumbers are "sawing wood," so to speak, that is to say, while there has not been a great deal of buildings of the larger sort, that is to say hotels, public buildings, etc., there has been considerable activity in the remodelling of premises and in the erection of homes, semi-detached houses, and flats; some large private institutions have been under construction, too. This activity has brought considerable interest to the plumbing trade, and general inquiries by SANITARY ENGINEER reveals the fact that conditions are quite satisfactory. Here and there some difficulty has been experienced in getting the right kind of workmen, but altogether conditions are much better than they were in this respect a few months ago. One of the difficulties has been that of getting an ample supply of various raw material just when wanted.

UNDERDRAINAGE STARTS ON FIRST MILE EAST

Winnipeg, Man.—Underdrainage of the first mile east on the Great Winnipeg Water District pipe line will be commenced at once. The estimated cost is $26,000.

The level of the water in the district will be lowered to prevent the water lying in contact with the concrete of the aqueduct. Serious deterioration of the pipe line has resulted from the alkali in the waters of the district.

This will mark the first step in an extensive campaign to prevent serious damage of the aqueduct. The underdrainage, it was intimated by engineers, may have to be extended the entire length of the pipe line. Test pits have been dug at intervals of 100 feet throughout the first ten miles of the line, and at many points deterioration has been found to have occurred in varying proportions. Some points show the affection to have gone as far as an inch and a half, while other points in the vicinity are untouched.

Tile drains will be used to carry the surface waters below the level of the pipe. It has been decided to open a camp, equipped for work, at once, and to carry the underdrainage project, if possible, to a conclusion this summer.

THE HUMPHREYS MFG. CO.

An attractive and valuable booklet has been issued by the Humphreys Manufacturing Company setting forth complete data concerning their line of pumps and offering co-operation in meeting any difficulties in connection with their installation. A number of colored illustrations are reproduced showing the value of water to man and beast, and photographs of some homes in which installations have been made are shown. An outline is given of the procedure to be followed in deciding upon action to be taken according to the kind of well which is to supply the water. Data concerning the measuring of the flow of water and the amount of water needed in the average farm and home is also outlined along with much other information of a valuable character.

TENDERS

Winnipeg.—Tenders have been called by the Provincial Government for the construction of a $1,000,000 home for the Deaf and Dumb School. Building operations are to be started this season.

Hints on Seasonable Advertising

The reproduction of some sample advertisements herewith will give some idea of the lines being advertised by others in the trade in all parts of Canada, and will impart some ideas or suggestions which others may incorporate in their local advertising.

"PLENTY OF HOT WATER WHEN AND WHERE YOU WANT IT." This is a seasonable appeal in an advertisement by McDowell & Mann, Victoria, B.C., as shown herewith. At this time of the year, when mornings and evenings are cool and the fire has been let out until next winter, the fact that plenty of hot water can be had at short notice and at little cost, is interesting. An appeal is made to the imagination in the concluding statement: "Steaming hot water, all you want."

Trouble With The Tubs

s a serious matter. And it is very kely to be frequent with the old style inc lined affairs. Better have us re- lace them with modern sanitary tubs iat cannot leak, cannot cut or scratch ie hands and are an ornament to itchen or laundry. Do not cost as uch as they are worth by a great eal.

H. R. SIME

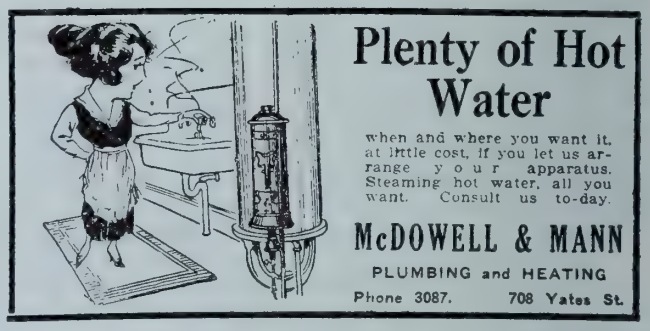
Deegan Block, 42 South Court
Telephone 2128 North

"WE WANT YOUR ORDERS FOR NEW PLUMBING JOBS OR REPAIRS," says an ad. by Barr & Anderson, Limited, Vancouver, B.C., continuing: "We ask them on the strength of our ability to give you the utmost satisfaction in materials, workmanship, promptness and reasonable prices. It costs you nothing to let us figure on the work."

This ad. has a convincing tone and is very direct in its appeal. This is a form of advertising which is employed a good deal with very satisfactory results.

Another ad. by the same firm states: "A BARR & ANDERSON JOB OF PLUMBING IS WHAT YOU NEED IN THE NEW HOME YOU ARE BUILDING." Here again is the direct appeal to the man who happens to be building a home. He is the man to whom the ad. will best apply and he will unconsciously respond with his interest when he reads it. The ad. continues, "And if your specifications call for Hot Water Heating, let us figure on it also. We do these things well. Suppose you have a talk with us before going on with your building plans—we believe such a chat will be mutually beneficial." The final appeal is of a personal character and completes an effective message, well directed.

"WHEN PLANNING TO BUILD YOUR HOME, GET EXPERT ADVICE ON YOUR PLUMBING AND HOT WATER HEATING SYSTEMS FREE," is the introduction to an ad. by A. L. McKay, Semans, Sask. Following the introduction are listed the plumbing and heating systems installed by this firm during last year. Under the illustration shown the ad. goes on to state that while a number of other instal-


Plenty of Hot Water
when and where you want it, at little cost, if you let us arrange your apparatus. Steaming hot water, all you want. Consult us to-day.
McDOWELL & MANN
PLUMBING and HEATING
Phone 3087. 708 Yates St.

lations could be named, that no doubt local people are acquainted with the jobs mentioned and tells them to ask what sort of service was given when the work was being installed. "Ask if we held up their house waiting for a plumber, and do not forget to ask who laid out and advised about their plumbing and heating and how their systems work. Also ask if they have had trouble and ask how prices compared with other centres. We will call on you at our own expense and talk the matter over. We positively guarantee all work done and are close at hand if anything does give trouble."

In this case the dealer is soliciting business which formerly had been going to larger centres nearby. It is noted that he makes use of the argument that he is close at hand in case any

Sanitary Plumbing is Fine

But it must be maintained in clean, careful working condition. Install the best equipment you can get in bathroom, kitchen, laundry, etc., but don't stop there—employ us to keep it in first-class order. Sanitary equipment is only sanitary if looked after once in a while. Give us the opportunity to show you what sanitary plumbing service means to you.

Henr E White & Co.

Plumbers and Electricians,
250 COLBORNE ST. 'Phone, Bell 534.

trouble is given by installations. This is perhaps one of the best arguments to retain local business as it is not good policy to deliberately depreciate the competitor's work.

"HAVE YOU A SHOWER IN YOUR BATHROOM?" asks the ad. by D. N. Flander, Inger-

PLUMBING

We supply a quality goods and install them in the best manner, and our prices are right.

Get our prices on WIRING. We have a first class electrician to look after your needs. Remember we sell Fixtures, Lamps, Bulbs, &c.

FURNACES.—Look to us to clean and repair your furnace now. It ruins your furnace to leave it in a dirty state all summer, and rots and rusts it out.

We also look after the repairing of your Roofs, Eavetroughs, &c.

CALL US AT 'PHONE 124.

MAINER & BARTINDALE

NEXT DOOR TO PACKET OFFICE.

soll, as shown herewith. "If not, you are missing a large parts of the pleasure of bathing," continues the ad. A clear-cut illustration helps to attract interest to this advertisement. Shower baths are not found in the average home, though there is no good reason why. This ad. gets at the reason why by stating that the expense is not great nor will there be any disturbance in the home. "We'll do the work so quickly, you'll hardly know we have been there. And we warrant you that once you use the new shower you wouldn't be without one for any money."

"TROUBLE WITH THE TUBS" is the subject of an ad. by H. R. Sime, Port Arthur, Ont. It states that such trouble is a serious matter and is very likely to be frequent with the old-style zinc-lined tubs. "Better have us replace them with modern sanitary tubs that cannot leak, cannot cut or scratch the hands and are an ornament to kitchen or laundry. Do not cost as much as they are worth by a great deal." This ad. makes an appeal from the standpoint of the utilitarian value of up-to-date tubs compared with the old style, and it also appeals from the standpoint of improving the appearance of the home. This latter is an important factor at the present time when housing values are high and every house-owner is endeavoring to keep his investment in the best possible condition.

"SANITARY PLUMBING IS FINE," says the introduction on the ad. by Henry E. White & Co., Brantford, as shown herewith. The use of a clean-cut illustartion draws attention to the ad. and the point made in the copy is that sanitary plumbing must be maintained in a clean, careful working condition and must be attended to periodically. In conclusion, it says: "Give us the opportunity to show you what sanitary plumbing service means to you."

HAVE YOU A SHOWER

in your bathroom? If not you are missing a large part of the pleasure of bathing. Have us put one in for you. The expense will not be great, nor will there be any disturbance in your home. We'll do the work so quickly you'll hardly know we have been there. And we warrant you that once you use the new shower you wouldn't be without one for any money.

D. N. FLANDER

Ing. Phone 12 INGERSOLL

We will Accept Bonds in Payment of Purchases at this Store

INTEREST CENTRES IN APPRENTICESHIP RULES

(Continued from page 30.)

each year. Meetings for final examination of apprentices at other times herein provided shall be at the discretion of the Joint Arbitration Board.

Section 15.

The Joint Arbitration Board having examined and passed an apprentice as journeyman. shall so certify in writing to the Steam Fitters' Protective Association, and on payment by said apprentice of initiation fee to the Steam Fitters' Protective Association, they shall issue him a journeymen's card.

Section 16

The rate of wages for apprentices will be as follows:

First year .....45 cents per hour
Second year .....50 cents per hour
Third year .....55 cents per hour
Fourth year .....60 cents per hour

Fifth year, and all additional time, if any, 65 cents per hour until apprentice has been passed and certified by said Board to the Steam Fitters' Protective Association.

Section 17.

Apprentices shall carry working cards signed by the Chairman of the Joint Arbitration Board and Secretary of the Steam Fitters' Protective Association, who shall designate the employer to whom the apprentice is assigned and the year of service. The apprentice shall pay for this card to the Steam Fitters' Protective Association quarterly the dues provided for steamfitters in Constitution of the Steam Fitters' Protective Association for the five years or more of apprenticeship, and upon the completion of the period and promotion to journeyman steamfitter the sum of $250.00 as initiation fee to the Steam Fitters' Protective Association. Apprentice shall have the same rights and benefits as a journeyman steamfitter. except that they will not be permitted to attend meetings or vote.

Section 18.

The Joint Arbitration Board shall conduct its meetings. and transact all the business in connection with the apprenticeship rules, in the same manner as provided for elsewhere in this agreement.

Between meetings of the Board, routine matters may be handled by the Chairman and Secretary of the Joint Board. acting jointly, and their action shall be subject to approval or revision by the Joint Board.

In all cases affecting the apprentice in which there may be a tie vote of the Joint Arbitration Board, the deciding vote will be cast by the umpire, as provided in the agreement, and the decision thus arrived at will be final and binding on all parties.

Section 19.

Expenses incurred by the Joint Arbitration Board in carrying out the provisions of this agreement will be borne equally by the Chicago Master Steam Fitters' Association and the Steam Fitters' Protective Association.

Section 20.

These rules shall not be amended, altered or suspended except by a two-thirds vote of the Joint Arbitration Board, and then only upon thirty (30) days' notice in writing to all members of the Board of the proposed change.

Interest Centres in Apprenticeship Rules

Rules as Agreed Upon Between Steam Fitters' Protective Association and Chicago Master Steam Fitters' Association Bring Forth Much Favorable Comment—Apprenticeship Problem in Canada is Acute

MUCH interest has centred in the rules for apprentices as outlined in the agreement between the Steam Fitters' Protective Association, Chicago, and the Chicago Master Steam Fitters' Association, in view of the fact that the apprenticeship problem is now an acute one in Canada, owing to the scarcity of boys of the right type, as was outlined by the Apprenticeship Committee at the recent convention of the Ontario Society Domestic Sanitary and Heating Engineers. A copy of these rules has been secured by SANITARY ENGINEER as follows:

Section 1.

Each party to this agreement shall teach the trade to apprentices in a manner which will result in their becoming efficient journeymen and as hereinafter more clearly and definitely provided.

The apprentice shall receive such instruction as hereinafter provided and be taught such subjects as may be deemed necessary in the opinion of the Joint Board; and for attendance at schools. classes or lectures and general deportment credit will be given apprentice upon his final examination for promotion to journeyman.

Section 2.

Application for apprenticeship shall be filed in duplicate with the Joint Arbitration Board on blanks furnished by them. and applications must be filled out complete by applicant in his own handwriting and must be recommended by three (3) acceptable individuals.

Section 3.

Employer being entitled to and desiring any apprentice, may make application for said apprentice to the Joint Arbitration Board. The employer, however, shall have the option to accept or reject any or all apprentices offered him by said Board.

Section 4.

Apprentices during the entire period shall be under the jurisdiction and control of the Joint Arbitration Board; and the Board has authority to protect their welfare and also to instruct, direct and discipline them.

Section 5.

An applicant for apprenticeship shall not be over twenty-one (21) years of age at the time of making application, except upon submitting satisfactory proof of having worked at the trade since January 1st, 1917, or having other apparent good and sufficient reasons which may be considered by the Joint Arbitration Board.

Section 6.

Applicant, before assignment to employer, will copy the following obligation in his own handwriting and file with the Joint Arbitration Board:

I, the undersigned, having made application to be enrolled as an apprentice with the Joint Arbitration Board, and having read the rules formulated by said Board providing for training of apprentices, understanding same and all conditions therein contained, do hereby agree to serve such time and to perform such manual training and study such subjects as the Board may deem necessary to become a journeyman steamfitter.

Section 7.

Employer assigned an apprentice may take him on trial for thirty (30) days, but thereafter shall undertake to keep him at work at the trade for not less than ten (10) months in each year, except in case of strikes, lockout, sickness or other unavoidable causes, or by action of the Joint Arbitration Board.

Employer in discharging an aprentice during the thirty (30) day trial period, or at anv time thereafter, shall immediately notify the Joint Arbitration Board in writing, giving the name of the apprentice and the reason for said discharge, and disposition of such apprentice shall be made by the Board within thirty (30) days of receipt of notice of discharge.

Section 8.

The employer shall agree that the apprentice will be worked under such conditions as will result in normal advancement and endeavor to have him attend classes or do the requisite amount of study or manual training work as prescribed by the Joint Arbitration Board, and, if required, shall submit proof to the Board of such attendance to studies or lectures. Employer shall also agree that apprentices will not be employed in a manner that may be considered by the Joint Arbitration Board as unfair to either party to this agreement.

Section 9.

Arrangement shall be made by the Joint Arbitration Board for the attendance of apprentices in classes where subjects will be taught or lectures given as deemed necessary to assist them in becoming proficient workmen.

The requirements will be the attendance of at least eight (8) lectures, illustrated or otherwise, per. year. And in individual cases the Joint Arbitration Board may require that the apprentice shall attend night schools as operated by the Chicago Board of Education for eight (8) weeks of each of the first four years of apprenticeship for instruction in mathematics, mechanical drawing or other lines as may be deemed necessary.

Section 10.

The apprentice shall serve and complete his apprenticeship with the employer with whom he is apprenticed, except as herein provided.

Section 11.

The Joint Arbitration Board may issue a permit for apprentice to work either temporarily or permanently for another contractor party to this agreement than the one to whom he is apprenticed, in which case the employer to whom the apprentice is assigned will assume all the obligations of the original employer.

Section 12.

The employment of apprentices shall be limited to regular members in good standing of the Chicago Master Steam Fitters' Association who employ at least three (3) steamfitters for ten (10) months of the year. If six (6) steamfitters are employed for the same time, the employer may have two (2) apprentices, and if nine (9) steamfitters are employed for the same time, the employer may have three (3) apprentices. The placing of apprentices to be employed by any one employer in excess of three will be a matter of distribution as decided the Joint Arbitration Board, to the end that the total number of apprentices. specified in the agreement will be properly proportioned among regular members of the Chicago Master Steam Fitters' Association. Temporary disarrangement of the above schedule will be reported to the Board by the employer and will not be considered a violation.

Section 13.

The apprentice will be examined by the Joint Arbitration Board at such times and periods as may be determined by said Board, but not less than once each year. Said examination shall be for the purpose of determining whether apprentice is making proper progress in the trade and his studies. Failing to find apprentice progressing properly, the Board may take such action as they consider necessary to correct this condition. and their decision shall be final.

Section 14.

An apprenticeship shall be for a period of five (5) years, at the expiration of which time his employer or employers during this period shall prepare a statement for consideration by the Joint Arbitration Board, which statement shall set forth the deportment, experience and general knowlelge of trade that the apprentice has acquired.

An apprentice will then be eligible as a journeyman, provided that he has received sufficient credit at such schools selected by the Board, and provided his knowledge of the trade after a final examination is such as will satisfy the Board that he is a good and efficient journeyman. If the apprentice should fail to pass the final examination, the Board may order him to continue as an apprentice for such additional time as in the opinion of the Board is necessary and at the end of such time another examination will be given him, and so on until he shall have passed the examination.

The Joint Arbitration Board will hold final examination of apprentices during the months of April, July and October of

Concluded on page 29

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

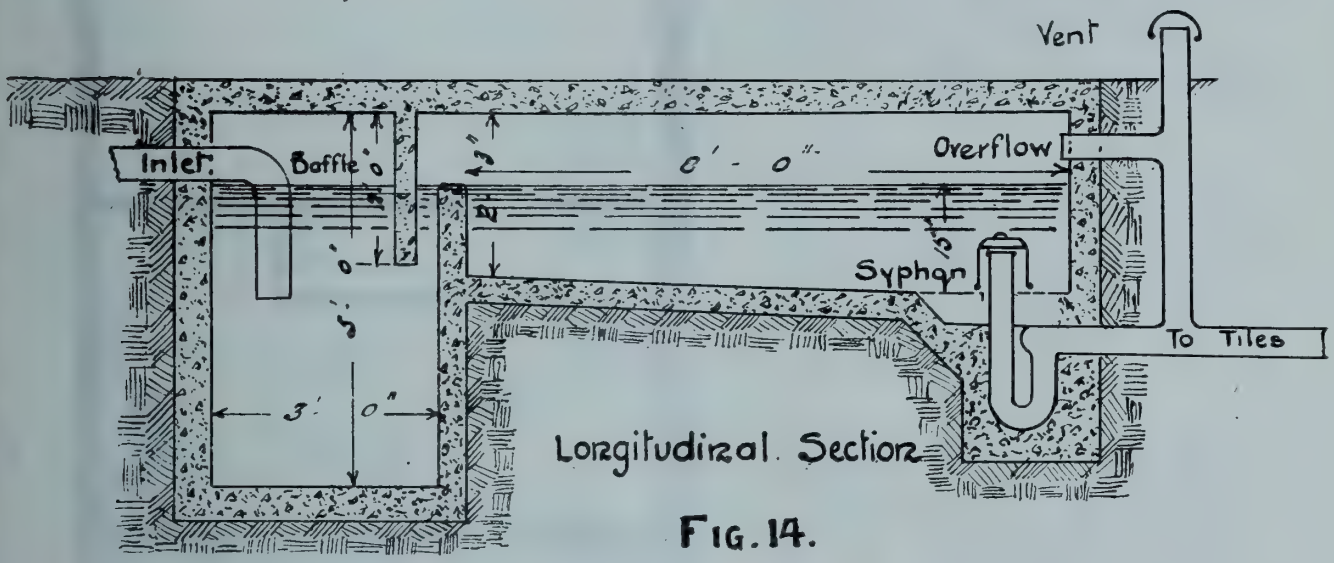


FIG. 14.

Article No. 9 of the Series—Illustrations 14-15

(Continued from last issue)

FIGS. 14 and 15 show plan, longitudinal section and cross-section of a double chamber septic tank designed for six persons, in flat ground, where the outlet is difficult to obtain.

The submerged sewage inlet enters the first chamber which is constructed much deeper than usual, the water sealed connection between the two tanks is obtained by constructing a concrete baffle wall connected to the sides and roof of the tank and running the full width of same as shown in Fig. 12, which appeared in the May 1 issue.

The sewage passes over the division wall and is carried up to the height required, by calculation, for the storage capacity of both tanks and acts as a weir running the full width of the tank as shown in the plan.

The overflow, automatic syphon and ventilator are constructed as previously described and inspection covers for easy access should be provided in the reinforced concrete roof.

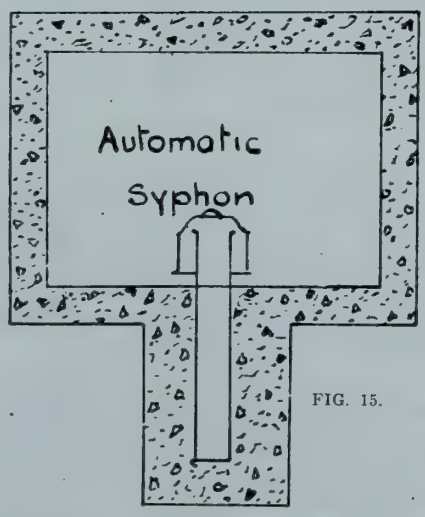


FIG. 15.

The Store of the Heating Contractor

A FEATURE of the Monthly Service Bulletin of the National Trade Extension Bureau for March, 1920, shows a typical arrangement of a store of a heating contractor which is full of suggestions.

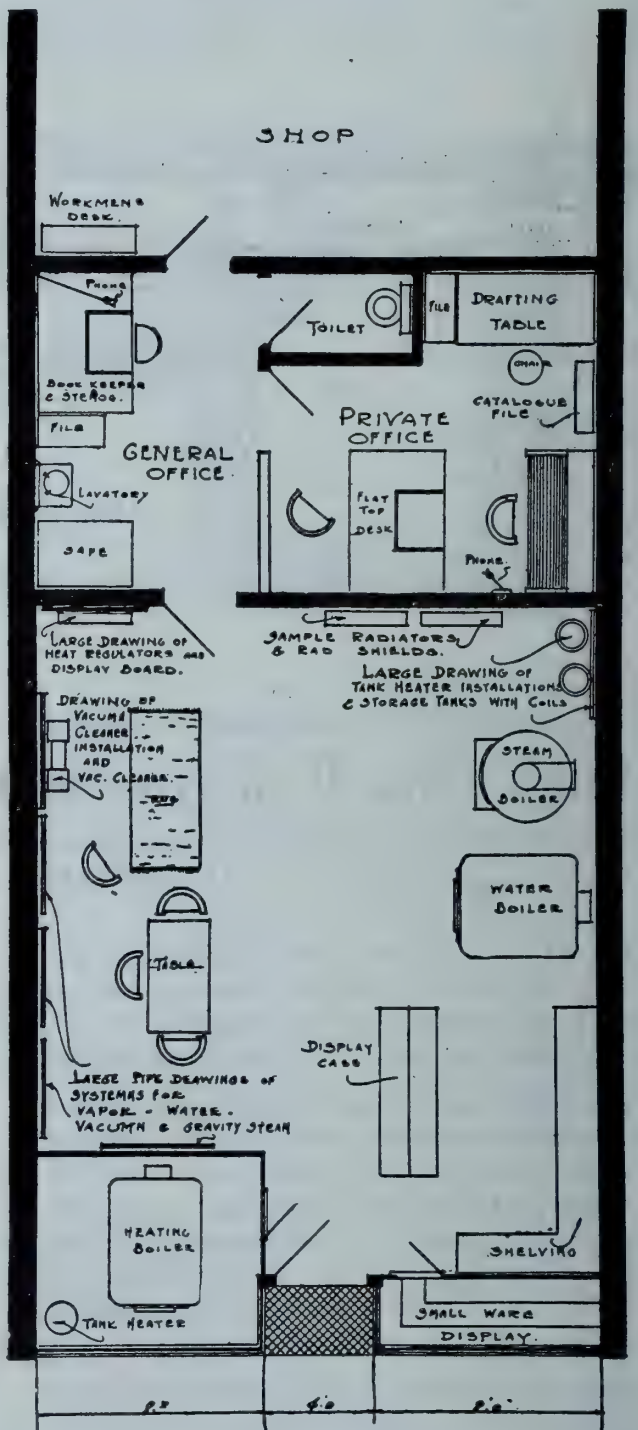
It is recommended, for instance, that the store and shop be heated by direct radiation, pipe coils, wall radiation of different kinds and heights. The office may be heated by direct-indirect and indirect radiation. This will give a working example of all kinds of heating methods for display purposes.

A large window is provided for displaying large ware and a small window for specialties. The furniture includes a display case and shelving to contain samples of valves and other appliances and specialties that the public might call for or want to see. These might embrace thermometers, altitude gauges, air valves, floor plates, boiler compounds, repairs for tank heaters and numerous other small items that people now buy anywhere they can get them.

A roomy reception space is provided, with chairs and tables, near the front of the store. On the walls could be hung large drawings of various kinds of heating layouts. This is suggested as one of the best methods of selling a job.

Conveniently located is a vacuum cleaner and a rug for demonstrating. Over the vacuum cleaner could be placed a large chart showing the piping layout. Nearby is a heat regulator display, then a radiator display, showing all heights and columns.

Other suggested displays include a heater and tank for furnishing domestic hot water and a round and square boiler.



SUGGESTED ARRANGEMENT OF STORE OF HEATING CONTRACTOR

Augment Montreal Water Supply

Two Electric Pumps Purchased With Total Capacity of 60,000,000 Gallons Per Day—Greater Margin of Safety in Event of Strikes

MONTREAL.—The Administrative Commission of the city of Montreal plans to augment the water supply of the city, and to this end have purchased two electric pumps, each having a capacity of 30,000,000 gallons per day. These pumps are costing in the vicinity of $50,000 each.

One of the reasons for these expenditures is assigned to the fact that last winter's experience with the aqueduct employees suggested it would be better to have a greater margin of safety in the event of a strike of employees taking place. As a matter of fact the plans of the city administration will be to instal more electric pumps eventually, increasing the number to five, with a 30,000,000 gallon capacity each.

Special Commission Appointed

As with other departments of civic administrations, improvement is being aimed at, and a commission to be known as a Special Waterworks Commission, composed of supervising engineers, has been appointed. This commission has charge of aqueduct improvements and will study in detail the establishment of a water supply required by the city, including the creation of power, electric, hydraulic, or otherwise, as well as the enlargement of the filtration plant, preparation of plans, etc. This commission will be composed of E. A. Doucet, chief city engineer, as chairman; R. S. Lea and Walter J. Francis.

To be Less Production of Non-Essential Lines

Hardware Trade Will Not be Adversely Affected by Financial Conditions

BELIEVING that the hardware business will not be adversely affected by the financial situation, Fayette R. Plumb, president of Fayette R. Plumb, Inc., and former president of the American Hardware Manufacturers' Association, in a letter to the New York Journal of Commerce, makes some interesting observations concerning financial conditions and other factors in the present business situation with their probable effect upon the hardware trade. He writes as follows:

"To my mind, the outlook on industrial conditions as they exist to-day is for a period of less extravagance, less reckless buying of non-essentials, and development of production of essentials to a point where this production will catch up with the unusual demand now existing.

"All financial signs point to a period of liquidation in the near future. Probably those who are carrying on business with borrowed money will find it much harder to get or to keep, and that it will cost much more. The volume of business being transacted with the reduced value of the dollar is straining our national resources in spite of the great expansion of credit. The Federal Reserve Board has decided to raise rates in order to bring about a gradual contraction of credit rather than to permit expansion to proceed to a point that might result in a crash such as followed the resumption of specie payments after the Civil War.

Demand for Hardware to Continue

"The demand for hardware, due to the shortage created by the war, is so great, however, that even such repressive influences cannot seriously or for any length of time check the volume of business. If there is not enough money to go around, the less essential industries must curtail. Hardware, and especially tools, are such necessities for the rehabilitation of the country that they must be made and distributed in the largest possible volume.

"If money has to be borrowed the price for it must be paid, no matter how much it adds to the cost. Although it will become increasingly difficult to advance prices to offset increases in cost and we must all expect smaller margins of profit, nevertheless the consumer will choose to pay what it is necessary to ask in order to keep production at the full, and will, when it is a matter of choice, go without what each considers the less essential articles, thereby releasing capital for the production and distribution of necessities.

"This will be the working of the law of supply and demand. A shortage of capital and higher money rates will increase cost. The consequent increase in prices will check the demand for the less essentials. Only the essential articles will be able to stand the increase, and these industries will outbid the less essential due to the demand.

"Difficulties attending the production of tools will be very great. The steel strike and the coal strike have produced a shortage greater than the average buyer realizes. We cannot secure assurances of delivery in less than a year on new specifications. It is expected that when the railroads start to buy they must be given preference and this will postpone other deliveries to eighteen months.

"The cost of labor is constantly rising with the cost of living, which is steadily going up in spite of the futile efforts to the contrary. The cost of common labor has advanced in our vicinity 20 to 25 per cent. since last fall. Aside from this, however, labor conditions are undoubtedly improving. There is not such a large turnover and there is a greater disposition to work.

"I believe in the future there will result less extravagance, less reckless buying of non-essentials. But this will not affect the essentials until the shortage has been made up. Then production will overtake consumption and the oversupply will produce a buyers' market in which profits will melt. The foreign exchange situation with its curtailment of exports will not seriously affect the tool market. The home demand is too great. It is possible that before the home demand is satisfied financial arrangements may be concluded under which the stream of American production may be turned into foreign channels.

"Regardless of what effect advancing costs may have upon the prices of tools, the demand for them must be satisfied. The utility of a tool on the farm, the railroad, in the mine, the lumber camp or the factory, and especially in carrying out the great building program, is so great that the cost of it is not so important as the necessity to supply it. The shortage is so great and the difficulties attending production are so great that it will take years to supply the demand. The waves will rise and fall, but

DELIVERY IS PART OF TAXABLE BARGAIN

OTTAWA.—R. W. Breadner, Canadian Commissioner of Taxation, has made several important rulings regarding the application of the new taxes. For one thing, he points out that delivery constitutes the consummation of a bargain. That is, if an article was ordered a couple of weeks ago, and was delivered only this morning, the buyer would be responsible for the entire tax on the same.

Moreover, Mr. Breadner stated that the one per cent. tax which wholesalers must add to their invoices must be paid by the retailer to whom the goods are sold and not be absorbed by the wholesaler. That is, every wholesaler must show on his invoice and also collect the full price of his goods and the one per cent. tax.

CATALOGUES AND BOOKLETS

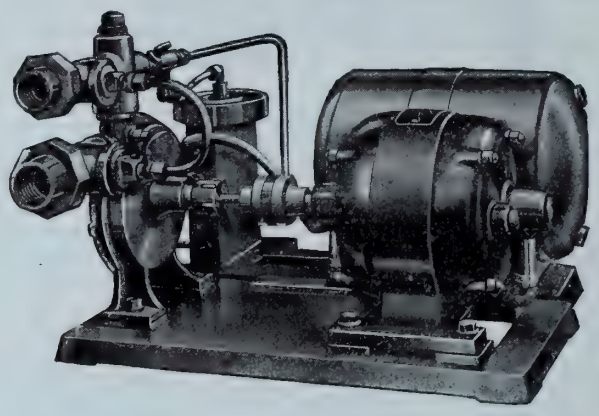
The Canadian Fairbanks-Morse Co., Ltd., have issued their new 1920 general catalogue No. 20. This new catalogue covers their full line and contains 960 pages which are very well illustrated, some of the lines shown are scales, valves, steam goods, oil engines, pumps, electrical machinery, machine tools, wood working machinery, transmission goods, railway construction and shop equipment, shop supplies and automotive equipment, etc.

There is also a department under the heading of Useful Data which gives tables on measuring and weights of the different kinds, also thermometer scales, as well as information on horse power engines and other useful information. Readers of HARDWARE AND METAL may have a copy from the above named firm on request.

NEW GOODS

Westco Pumps, Limited, 707 Yonge St., Toronto, Ont., are manufacturing in Canada a new water system for use in rural homes where electricity is available.

The makers state that one of the features is its simplicity, the pump itself having only one moving part—there being no wear on this except in two small bearings on the shaft which, in case of necessity, may be quickly replaced. pletely enclosed, and the necessary fittings and connections assembled. The one moving part in the pump, the impeller, has a wheel containing a certain determined number of blades on each side of its outer rim. This rotating at high velocity in a water channel cast in the pump casing, draws the water by powerful suction from the source of supply and discharges it against high pressure to the outlet.



Another claim is that because of the large capacity of the pump it requires no large pneumatic or attic storage tank, thus saving greatly on installation expense.

The manufacturer describes the system as follows:—The entire unit consists of a Westco pump of from 300 to 500 gallons per hour capacity connected to a ¼ h.p. electric motor, a small compression chamber of about one gallon capacity, an automatic electric control switch com-

The makers also state that this system is capable of working against pressures of as high as 75 lbs. and with a ¼ h.p. motor may be used for continuous service at pressures up to 45 lbs. The overall dimensions of the complete system are 16½ in. long by 14½ in. wide by 11 in. high and are also made in larger sizes. These water systems may be run from small electric farm lighting plants as well as from regular central station current, it is stated.

St. John Merchants Censor Advertising

Local R. M. A. Adopts Plan to Eliminate Useless Advertising Which Merchant Has Felt Under Obligation to Patronize

THE Retail Merchants' Association of St. John, N.B., have adopted a plan to eliminate useless advertising. For two or three years there has been a constant drain on the pockets of the merchants by promoters of social affairs, who have pestered storekeepers with requests that they take up advertising space in programmes, etc. While the merchants were not opposed to helping out at times with a little financial assistance, the practice has become more or less of the nature of a hold-up, and it is very doubtful if the merchants get returns in proportion from this form of advertising scattered through the sixty pages of programme.

This particular merchant was forced to take a page or have his name spread among the members of the church as being a non-supporter of their organization.

It can readily be seen that with social affairs occurring every week, and two or three times a week, that a large amount of money was absolutely wasted, and the merchant put in such a position that he could not help himself.

To cope with this situation the St. John branch of the Retail Merchants' Association has appointed a censor committee, and all members of the association have pledged themselves not to buy any space in any advertising scheme unless they were first submitted to the secretary of the association, who would in turn hand the application to the censor committee, who would not be known to the public.

If it is passed and endorsed by the committee, then the solicitor for the advertisement could go to the merchant, but without a certificate showing that the scheme had been passed the merchant would decline to take space, and refer the canvassers to a card which hangs in his office, and reads:

"This firm is a member of the Retail Merchants' Association, and is not permitted to take space in any advertising scheme until such has first been passed by the censor committee of the association."

HEATING AND VENTILATING—BOILER CAPACITIES

(Continued from page 19)

to maintain heat between firing periods. A surplus of fuel equal from 20 per cent. to 30 per cent. of the fuel-carrying capacity is required for re-firing.

Fuel Evaporation

Figuring, for example, that we have a grate area and a fuel pot sufficient for 700 lbs. of coal, and if we deduct 25 per cent. of this amount of fuel (to allow for reserve coal capacity), and allowing 8 lbs. of water per lb. of coal, we find that the evaporating power of the boiler is 4,200 lbs. of water (equal to 16,800 sq. ft. of radiation). This is taking the efficiency of radiation at 242 B.t.u. per hour.

Firing Periods

The reader is to understand that the foregoing example is on the hour basis. In using this example with due consideration given to firing periods, we find that the same boiler on an 8-hour firing period is equal to one-eighth of 16,800, or 2,100 square feet. On a 10-hour period it is equal to only 1,680 square feet. It should be noted that very few boilers are rated on as long firing periods as here given.

Be sure and find out on what firing periods the boiler is rated because it is only reasonable to understand that a boiler that must be fired frequently is not so efficient as one requiring little attention, even though the frequently-fired boiler evaporates a great quantity of water with a low fuel consumption.

The Main Factors

The main factors in rating the capacity of a heating boiler are not the factors of size, etc., but:

First: The evaporating power of the boiler per pound of coal.

Second: The coal-carrying capacity.

Third: The length of firing periods.

Reserve Capacity

It is hardly necessary to advise the readers of SANITARY ENGINEER to always consider the kind of load the boiler is to carry. In an ordinary heating system, where a fairly uniform temperature is maintained in the building, a margin of safety of 20 per cent. to 40 per cent. of the actual load will be enough, but where the boiler is to be under such conditions as the hard firing common to boilers installed in churches, theatres, etc., a margin of 100 per cent. over the actual load is not too much.

The Flue

The flue to which the boiler is connected has a bearing on the capacity of the boiler.

A safe rule to follow is to connect the boiler only to a flue of the size and height recommended in the manufacturer's catalogue.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

REGARDLESS of the rumors current that prices have reached the peak and are about to fall. Price tendencies continue upward and higher quotations have been made on conductor pipe, eavestroughing, furnaces, galvanized shingles and siding, conductor elbows and ridge roll, said pipe prices are still withdrawn, and any quotations are for immediate acceptance. The enamel ware situation shows little improvement and higher prices may be made.

Lead waste and lead pipe have declined ½ cent pound. Solder also dropped 2 to 3 cents per pound. Ingot tin, lead and spelter have declined and still show a weak sagging tendency.

The new Legislation in the way of a business Turnover Tax will have a vital bearing on all commodity prices and although it is becoming readily adopted many questions are daily being brought up.

Manufacturers and jobbers state there is an ever increasing shortage of raw materials and manufactured commodities, especially where iron or steel is used.

Collections are coming forward satisfactory and money is circulating freely. Although financial concerns are tightening up on loans.

TORONTO, May 31.—Higher prices continue to be made and this issue records further advances. It is interesting to note, however, that some reductions have been made, and lead waste, lead pipe and solder have taken a downward trend; pig tin has declined 7 cents per pound, while pig lead and spelter are also cheaper.

Furnaces have been revised upwards and will now cost approximately 5 per cent. more; gas heaters have also been advanced about 5 per cent. Conductor pipe and elbows, galvanized shingles and siding, ridge roll and eavestroughing have all been marked up. New soil pipe quotations have not, as yet, been issued.

The new legislation in the way of a turnover tax is being readily adopted and has occupied the attention of all classes of business men.

The tie-up of freight transportation on the United States railroads is causing considerable loss and inconvenience to many in the trade depending on this source of supply. This is also true where the manufacturer is concerned; jobbers also state there is an ever-increasing shortage of raw material and manufactured products, especially where iron and steel are concerned.

Collections continue to come forward promptly and money is still circulating freely although financial concerns have tightened upon loans, it is stated.

New Ridge Roll Price Now List Plus 15%

RIDGE ROLL also has new prices on account of the scarcity of sheets; the new quotation is list plus 15 per cent. The new prices follow:

RIDGE ROLL—

8 inch	$6 90
10 inch	7 70
12 inch	9 10
15 inch	12 50

Conductor Pipe Elbows Have Advanced 35%

CONDUCTOR PIPE ELBOWS have also been revised upwards and the new price is now list plus 40 per cent., being an advance of approximately 35 per cent. The following are the present quotations:

ROUND CORRUGATED OR CRIMPED ELBOWS

	Doz.
2 inch	$1 90
3 inch	2 20
4 inch	3 60
5 inch	9 00
6 inch	10 50

Add 4% to above list.

Pipe Fitting Quotations Firm; Show No Change

PIPE FITTINGS.—No change in price has been made on pipe fittings, although the present quotations are firm; the demand continues very satisfactory and a fair volume is moving. The present quotations follow:

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Conductor Pipe Now Quoted at List Plus 15%

CONDUCTOR PIPE.—Prices have again been revised upwards; this is directly attributed to the acute shortage of galvanized sheets from which this commodity is manufactured.

EAVESTROUGHING prices have also been marked up; the same conditions as above mentioned apply. The following are the new quotations:

PIPE (Conductor)

Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10 ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in.	$6 90	15-in.	$12 50
10-in.	7 70	18-in.	16 00
12-in.	9 10		

F.O.B. Toronto, Oshawa, Ottawa.
Add 15% to the above list.

Enamelware Prices Firm; May be Higher

ENAMELWARE.—No break in the price of this commodity has as yet been made recently although the present quotations are very firm. The difficulty of securing raw materials continues to be the chief difficulty the manufacturers have to face. The recent tie-up on the United States railroads has been a serious drawback to manufacturers of nearly all commodities; especially is this true of iron and steel products. The coal and coke supply is also badly tied up and is not without its effect on production, and incidentally making prices very firm. The following are the present quotations on enamel ware:

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4..5			11 05
18x24" Apron F154 or P3845 or P3847			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9.05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

May be Famine for Some Sizes Wrought Pipe

WROUGHT PIPE.—The situation on this commodity is becoming worse instead of better, it is stated. Some have it that some of the large skelp mills are practically closed down for want of raw material, while others have closed up shop; this is mainly due to the scarcity which has prevailed in raw material for some time back, although the freight embargo has greatly aggravated the situation. This naturally holds up production in the pipe mills, and it is believed that large building operations are being held up on account of the acute shortage of some sizes of pipe. The present quotations are firm although unchanged.

PIPE—WROUGHT

Price List No. 44—April 8, 1920.
STANDARD BUTTWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
⅛ in.	$6 50	$ 8 50	....	....
¼ in.	5 13	7 26	$ 5 43	$ 7 56
⅜ in.	5 13	7 26	5 43	7 56
½ in.	6 84	8 42	7 27	8 84
¾ in.	8 45	10 58	9 03	11 16
1 in.	12 50	15 64	13 35	16 49
1¼ in.	16 91	21 16	18 06	22 31
1½ in.	20 21	25 30	21 59	26 68
2 in.	27 20	34 04	29 05	35 89
2½ in.	43 00	53 82	....	....
3 in.	56 23	70 38	....	....
3½ in.	71 30	88 32	....	....
4 in.	84 48	104 64	....	....

STANDARD LAPWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
2 in.	$30 90	$37 74	$34 60	$41 44
2½ in.	45 34	56 16	51 19	62 01
3 in.	59 29	73 44	66 94	81 09
3½ in.	73 14	90 16	82 34	99 36
4 in.	86 66	106 82	97 56	117 72
4½ in.	0 98	1 23	1 24	1 49
5 in.	1 15	1 44	1 44	1 73
6 in.	1 49	1 86	1 87	2 25
7 in.	1 94	2 43	2 42	2 90
8-L in.	2 04	2 55	2 54	3 05
8 in.	2 35	2 94	2 92	3 51
9 in.	2 81	3 52	3 50	4 21
10-L in.	2 61	3 26	3 25	3 90
10 in.	3 36	4 20	4 18	5 03

Terms—2% cash discount if paid within 30 days. Approved credit.

Compression Work Valves, Etc., Have Big Demand

COMPRESSION WORK of nearly all kinds is in fair demand at present and many jobs are being fitted. The present quotation continues very firm, although no change has been made recently. Brass values and other kindred equipment for marine consumption is having an extra heavy demand this season and some manufacturers state they are several weeks behind in their orders. The following are some of the quotations:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Soil Pipe Quotations Still Withdrawn

SOIL PIPE.—Prices on this commodity are still withdrawn, and any prices that are quoted are for immediate acceptance. The embargo on the United States railroads is said to be a great detriment to manufacturers who claim they have great difficulty in securing some of the necessary supplies for manufacture of this commodity. The present prices are quoted only on application.

Galvanized Shingles and Siding Advance

GALVANIZED SHINGLES.—New and higher prices have been made on this commodity, which is directly attributed to the scarcity of raw material and the higher cost of procuring same. The new price is now being quoted at $12 per square. Galvanized siding has also been advanced in price, the new quotataion being $10.50 per square.

Some Furnace Prices Are Marked Up 5%

FURNACES of many makes have been revised upwards to the extent of about 5 per cent. Manufacturers state that this is in the way of a revision and the new prices are now more in line with their cost than those formerly quoted. Manufacturers state they are kept very busy on orders for all kinds of stoves, furnaces, and other kindred lines, and while it is true there is some rumor of lower prices on many commodities in the near future, manufacturers state they can see no intimation of lower prices until raw materials become more plentiful or the present demand falls off. They also state that present indications point to a very busy fall and that they are working with full speed in order to accumulate if possible sufficient stock to handle the heavy business which they expect for fall delivery.

Cotton Waste Firm; Oakum Unchanged

COTTON WASTE.—Quotations remain unchanged. Although present prices are firm jobbers express themselves as very well satisfied with the volume moving, especially since the opening up of navigation with the advent of warmer weather. Other outside work is daily extending, which all has a tendency to increase the demand. Oakum is also having a good demand, the present quotataion on bale lots being 12½ cents per pound, and small lots 14 cents per pound.

WASTE		
Cream, Polishing	....	0 28
WHITE		
XXX	....	0 22½
XX	....	0 20½
X	....	0 18½
XC	....	0 17½
Japanese	....	0 17
XXX	....	0 24
XX, grad.	....	0 22½
XLCR	....	0 21
X Empire	....	0 19½
X Press	....	0 17½
X Special	....	0 15½
COLORED		
No. 5	....	0 16¾
No. 1	....	0 16½
No. 7	....	0 15
No. 1A	....	0 13¾
No. 1B	....	0 11¾
Fancy	....	0 19
Lion	....	0 17
Standard	....	0 15
Popular	....	0 13
Keen	....	0 11

Above lines subject to trade discount for quantity.

Range Boiler Quotations Hold Unchanged

RANGE BOILERS continue to sell steadily regardless of the new prices recently made and manufacturers claim they have more business ahead than they can comfortably handle. The difficulty of securing coal, coke, and raw material is daily increasing, say the manufacturers, which they attribute to the embargo on the United States railroads, which is tying up freight of all kinds, and many firms depeneding on this source of supply are at a standstill. The present quotations on range boilers are very firm, although no further immediate change is looked for at present. The quotations are as follows:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Firm Prices Hold Iron and Steel Bars

IRON AND STEEL BARS. — Good business is being done in this commodity, although the demand has slackened down to some extent. This, however, is believed to be due to the freight embargo which is causing the shortage of many commodities which in turn hold up work requiring the use of bars. The present prices are very firm, although it is not expected that higher prices will be made, at least not immediately. Some have it that the mills are not accepting orders unless for long date bookings. The following are the present quotations:

Common bar steel, 3-16 and light	6 00
Common bar steel, ¼ in. and heavier	5 50
Common bar iron, 3-16 in. and heavier	6 00
Common bar iron, ¼ in. and heavier	5 50
Angle base	5 75
Horseshoe iron	6 00
Tire steel	5 95
Band steel	5 75
Spring steel	12 75
Mining drill steel	31 95
Sheet cast steel	....
Mild steel	5 75
Norway iron	16 25
Toe caulk iron	6 70
Sleigh shoe steel	5 75
Hoop steel	6 75

Weaker Tendency for Waste Materials

SCRAP AND WASTE MATERIALS.—Little change has been shown in the tendency of this market, and dealers state that business is very quiet. This is especially true of the red and yellow metals, which show a very noted sagging downward tendency. No. 1 cast iron and also stove plate show a fair demand, although they are gradually weakening, it is stated. This situation is fully attributed to the embargo on the United States railroads, which, it is believed, is tying up many industries which use these materials in their manufacture. The following are the present quotations:

MADE IN CANADA

MUELLER

Nickel Plated

Adjustable Basin Traps

With Cast Parts

We offer N.P. Adjustable Basin Traps, S. and P., Plain and Vented, in 1¼" size, for prompt shipment.

Mueller Traps combine:

Beauty of Design,
Quality of Material
and Finish.

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

H. Mueller Mfg. Co., Ltd.

SARNIA
CANADA

MANUFACTURERS OF HIGH GRADE MUELLER WATER PLUMBING AND GAS BRASS GOODS

DEALERS' BUYING PRICES

Pipe scrap	....	11 00
No. 2 busheling	....	13 00
Stove plate, per ton	....	....
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 08
Scrap zinc	....	0 06½
Heavy copper	....	0 17
No. 1 machinery cast	....	....
Wrought iron, No. 1, per gr. ton	....	15 00
Heavy melting steel	....	15 00
Heavy lead pipe	....	0 06
Old rubbers, boots and shoes	....	0 06
Overshoes. lumbermen's rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 04
Heavy lead pipe	....	0 06

Firm Price Holds on Corrugated Sheets

CORRUGATED SHEETS.—Manufacturers state that sheets to manufacture this product are daily becoming harder to procure and are very much concerned for the near future. Some state that if the embargo on the United States railroads continues and sheets do not come in better quantities, that this market will show famine, as no one seems to have any stocks to sell and prospects seem very poor for procuring immediate delivery. It may be that it will be some time before shipment will commence to arrive, even after the embargo is lifted, on account of the congestion of freight. The quotations are as follows:

CORRUGATED SHEETS—	Per 100 sq. feet Galv'd
No. 28-gauge	$10 50
No. 26-gauge	11 25
No. 24-gauge	16 75
No. 22-gauge	19 75
No. 20-gauge	23 50
No. 18-gauge	30 00

On shipments of 300 lbs. and over, freight is allowed south and east of and including North Bay; also several western counties in Quebec Province. Places north and west of North Bay, the freight is equalized on North Bay. For Quebec and Maritime Provinces. freight is equalized on Montreal.

Discount 7½%.

Embargo Causes Famine on Sheets and Plates

SHEETS AND PLATES.—The freight embargo on United States railroads is the cause of many empty warehouses, it is stated, and jobbers and manufacturers are very much concerned for the future, as they claim that the embargo has tied them up in such a manner that they are only able to obtain very light shipments, if any.

Many state they have large shipments of sheets in transit, and state they have some of them paid for, and yet they so far have no advice of their whereabouts or where to locate them. It is the opinion of some that it may be some little time before freight moves freely, even after the embargo is lifted, on account of the congestion of freight cars at many important shipping centres.

The following prices are quoted here merely as a guide, as it believed that very few could supply a full list of sizes. Owing to the present scarcity, it is necessary, in many cases, to pay premiums over these quotations as jobbers often find it necessary to go into the local market in order to secure the urgently-needed stock to fill their orders.

BLACK SHEETS

14 gauge	....	$8 95
16 gauge	....	9 00
18-20 gauge	....	9 45
22-24 gauge	....	9 50
26 gauge	....	9 55
28 gauge	....	9 65
3-16 inch plate	....	9 75
¼-inch boiler plate	....	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$12 00	$11 50	$12 00	$12 25
U.S. 28	11 45	11 70	11 45	11 85
U.S. 26	11 15	11 40	11 15	11 55
22 and 24	11 00	11 25	11 00	11 40
18 and 20	10 70	10 95	10 70	11 10
16	10 70	10 95	10 70	11 10
12 and 14	10 55	10 20	10 55	10 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Situation on Boiler Tubes Unchanged

BOILER TUBES.—A fair demand continues for boiler tubes, and jobbers state they are very well satisfied with the business that is being offered at present. Stocks on hand are said to be fairly light and the opinion seems to be that boiler tubes may be very scarce, especially coming on towards the fall season, and this is attributed fully to the shortage of skelp. Some have it that the recent tie-up of the American railroads will seriously affect this situation on account of the coal, the holding up of raw material, and many other factors. The present prices are being quoted at firm figures, although no change has been made this week, and are as follows:

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 00	30 00
2 inch	32 00	29 00
2¼ inch	37 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Lead Pipe and Waste Drop ½c; Solder Also Down

LEAD AND ZINC PRODUCTS.—Notwithstanding the fact that prices on lead pipe, lead waste pipe and lead sheets, etc., showed a decline last week, stocks are reported to be light. The demand continues to be very brisk. The declining market, is attributed to the erratic conditions of the basic metal on the English market, dropping one day and gaining the next. Present indications point to steady market for some little time. Although few are predicting higher prices, some have it that they would not be surprised if quotations on these products would go still lower in the near future. The warm weather is said to have brought out the demand for lead waste and lead pipe, and large volumes are moving out daily. The following are the present quotations:

Lead pipe, list, per lb.	0 17
Lead waste pipe, list, per lb.	0 18
Do., over 8 in., list, per lb.	0 19
Lead traps and bends	add 30%
Lead wool, lb.	0 16
Lead sheets, 4 to 6 lbs., sq. ft., in rolls, lb.	0 13

Cut sheets ½ to ¾c lb. extra and cut sheets to size 1c lb. extra.

Solder, wire, lb.	0 44
Solder, strictly, lb.	0 38½
Solder, commercial, lb.	0 36½
Solder, guaranteed, lb.	0 44
Solder, wiping, lb.	0 36
Zinc sheets, per lb.	0 19

Tin Down 7c; Lead and Spelter Also Weaker

INGOT METALS.—The entire metal situation continues more or less panicky and nearly all are erratic; the tendency, however, is weaker, and further reductions have been made this week. Tin has shown the heaviest decline, having dropped 7 cents; spelter is a ¼ cent lower, while lead has declined a ½ cent Other ingots are also weaker.

TIN.—A heavy decline has been made in tin, the price having dropped 7 cents per pound, making the present price 60 cents per pound.

ALUMINUM shows little active demand and is quoted at around 37 cents per pound.

COPPER quotations remain unchanged, 24 cents per pound still being the quotation.

ANTIMONY.—Prices continue to hold unchanged, although the tendency is weaker and is selling at 15 cents per pound.

LEAD has also been marked down this week, 10½ cents per pound being the new quotation.

SPELTER. — Prices continue to weaken, a lower quotation of 10½ cents per pound having been made.

Fear Another Steel Strike on June 1

"With the railroad tie-up still an extremely serious drag on the iron and steel industry, there are reports in circulation that the American Federation of Labor organizers have decided to stop such activity as still exists by calling strikes at all of the iron and steel plants of the country. The steel trade has the report that the call will be made effective June 1," says the Daily Metal Reporter.

"It has been known that the union organizers have been very busy in all important iron and steel manufacturing centres, and there are reports that their efforts during the past few months have brought in large numbers of recruits in the Pittsburgh, Youngstown and Cleveland districts, in spite of the utter failure of the recent steel strike. Whether the unionization movement has gone far enough to result in a stoppage of operations at all the big plants whenever union leaders say the word is debatable. Developments will be watched with the greatest interest.

"In a recent talk at the Socialist convention, W. Z. Foster, who led the steel strike, is reported to have said that the union organizers were working to the end of calling out the coal miners, steel workers and railroad men all at the same time, when 'the time was ripe.' If that is to be the program, it appears doubtful if the call will come as soon as June 1."

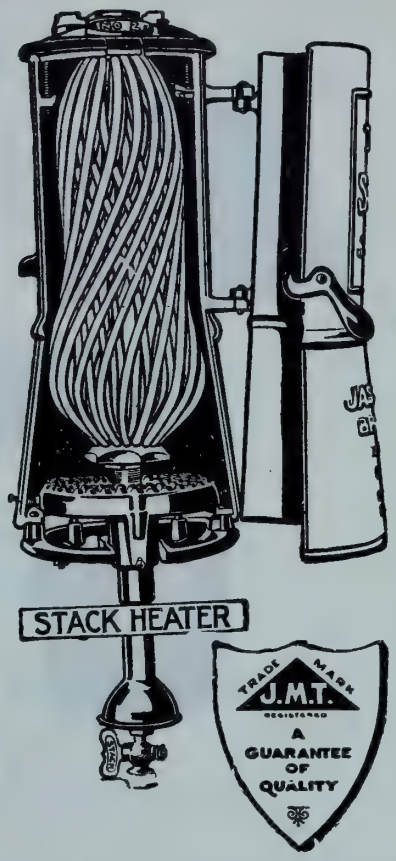
From Cold to Hot in 60 Seconds

STACK HEATER

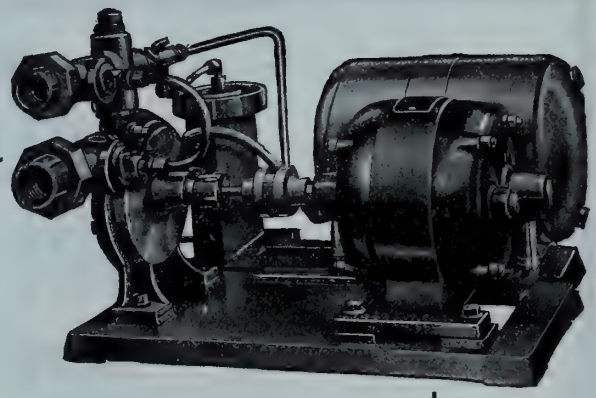
Take note of the small size and large number of coils; this means quick heat. The numerous small pipes will naturally heat water quicker than one big pipe because of the greater heating surface offered.

You can sell your prospect with certainty when you show him that this dependable heater will heat water in one minute.

Send for a Stack Heater Display Card.



The James Morrison Brass Mfg. Co., Limited
93-97 Adelaide Street West, Toronto, Ontario



I pump 300 to 500 gallons per hour, have only one working part and require no tank.

I am more surely automatic than any living thing—(open a faucet and I start, close it and I stop).

I can supply at least four faucets at once and use less power than an Electric Iron (¼ horse power).

I am 16½" long, 14½" wide and 11" high, and weigh less than 100 pounds ready to travel—a nice small armful.

I am the **Westco** *Tankless Water System.*

Would you like to see me work?

Take a Yonge car to 707 Yonge St. (upstairs), first stop south of Bloor. I am there now.

There are more details in another part of this issue.

I AM MADE IN TORONTO

Seamless In One Piece

ANTHES SYPHONS

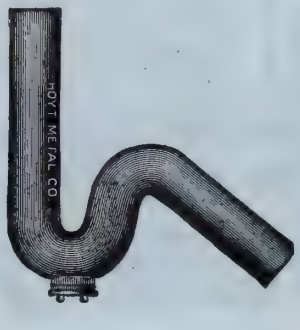
reflect great credit on the man who installs them. The "credit" so reflected is often changed to "cash" by the influx of new business following the success of a new installation of Anthes Syphons.

Anthes Syphons are made in one piece, without seam or joint, and, operating on purely natural laws, with no moving parts to get out of order, they give great satisfaction in use.

We will furnish you with Sewage Disposal Blueprints on request.

Anthes Foundry Limited

Toronto and Winnipeg



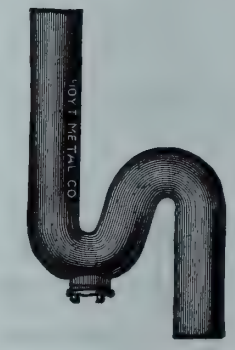
Be Sure to Specify:

HOYT LEAD PIPE
HOYT TRAPS AND BENDS
HOYT SHEET LEAD
HOYT WIPING SOLDER
HOYT CALKING LEAD

Sales in 1919 over $10,000,000

HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG



No. 4 B. & C. Automatic Radiator Air Valve Fully Tested

Our Automatic Radiator air valves are fully tested before being shipped to the customers. They are made from the best brass with cast brass base. Screwed and soldered on. Satisfaction is assured when "B. & C." valves are used.

Write for catalogue.

The Beaton & Corbin Mfg. Co.

Southington, Conn.

Stocks carried by our Canadian Representatives

Canadian Representative: W. H. Cunningham & Co

183 Church Street - - Toronto, Ontario

"HAUSE" PIPE JOINT CEMENT

For steam, water, air, oil, gas, gaskets, etc. The cement that cements. Sets like gum. Allows no leaks.

The Great Value of "HAUSE PIPE JOINT CEMENT" lies in its peculiar chemical properties which permits of its hardening and expanding after the joints are made up. In making up joints it has the same effect as a lubricant on the best graphite, and while the joints may be made and broken readily, a perfectly tight joint is maintained at all times. Comes in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans, 100-lb. barrels. Manufactured in ready mixed and powder form. Ask your jobber for prices, or write us direct.

Made in Omaha, Neb., U.S.A.

Manufactured in Ready Mixed and Powder Form.

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LONDON and TORONTO

The Canadian Society of Domestic Sanitary and Heating Engineers

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Every Plumbing and Heating Operator

in the

Dominion of Canada

is extended a hearty invitation to attend

The Twenty-third Annual Convention

of the

Canadian Society of Domestic Sanitary and Heating Engineers

to be held at Toronto

in the Canadian Foresters Building, 22 College Street

Tuesday, Wednesday and Thursday,

June 8th, 9th and 10th, 1920

. . *Convention Programme* . .

TUESDAY, JUNE 8th.
10.00 A. M. Meeting of Executive Committee.
2.00 P. M. Opening of Convention Officers Reports.
2.30 P. M. Auto drive for the Ladies.
8.00 P. M. Educational Evening by Toronto Ender Educational Clubs.

WEDNESDAY, JUNE 9th.
9.30 A. M. Reports of Special Committees.
Nomination of Officers.
Selection of next meeting place.
2.30 P. M. Conference with Manufacturers and Wholesalers.
7.30 P. M. BANQUET—KING EDWARD HOTEL.

THURSDAY, JUNE 10th.
10.00 A. M. Election of Officers.
2.00 P. M. Grand Wind-Up.
AULD LANG SYNE,
ALL FOR ONE, ONE FOR ALL,
EVERYONE FOR CO-OPERATION
and
A BUMPER CONVENTION,

Address all communications to
Garrett F. Frankland, Secretary-Treasurer,
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Frank R. Maxwell,
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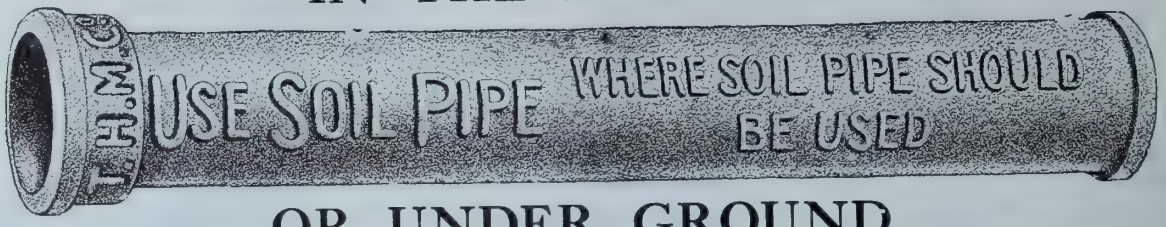

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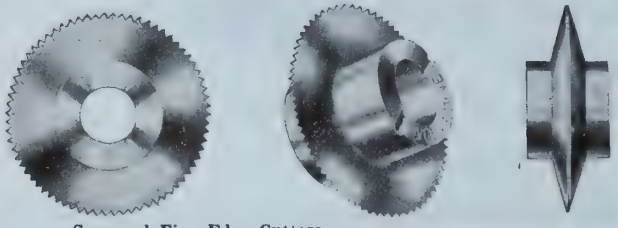

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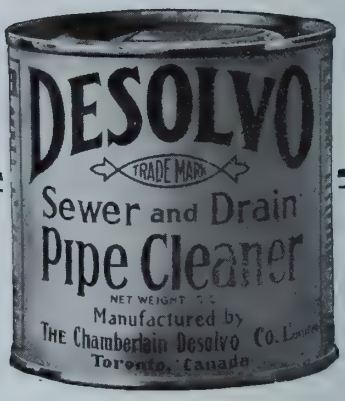

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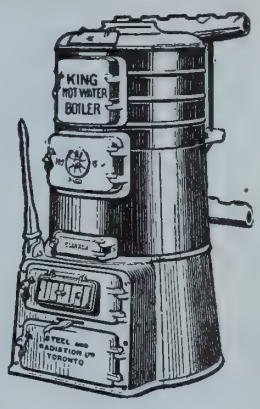

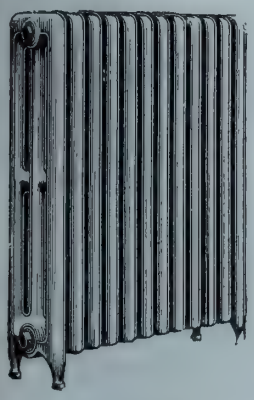

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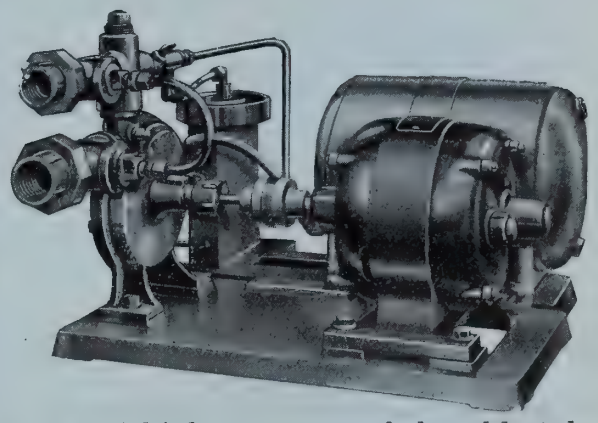

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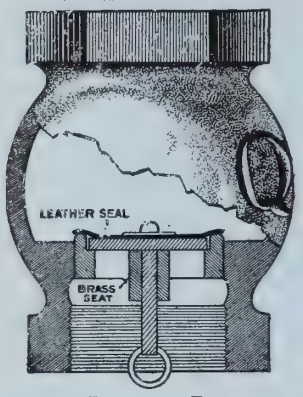

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Kerosene Water Heater

Here is a REAL Kerosene Water Heater.

Works like a gas heater — easy to operate.

WICKLESS burner generates its own gas and throws a clean powerful flame.

This heater is guaranteed to give SATISFACTORY SERVICE.

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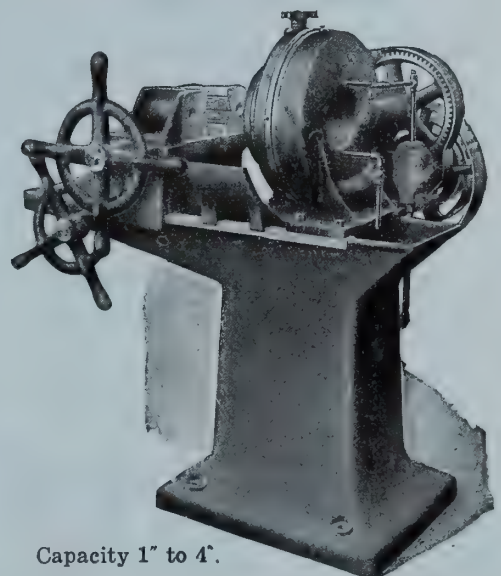

Capacity 1" to 4".

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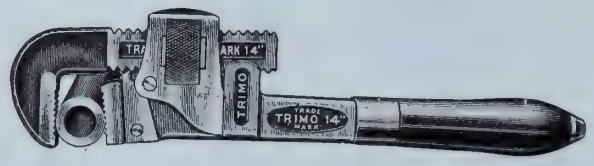

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Pipe Threading Machines

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The CEILING PLATE that's better

TOP VIEW NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾″ WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

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The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

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Specially prepared for Hot and Cold Water Taps. All sizes from ½ inch to 1½ inches. Soft, Pliable, and "Joint-Perfect."

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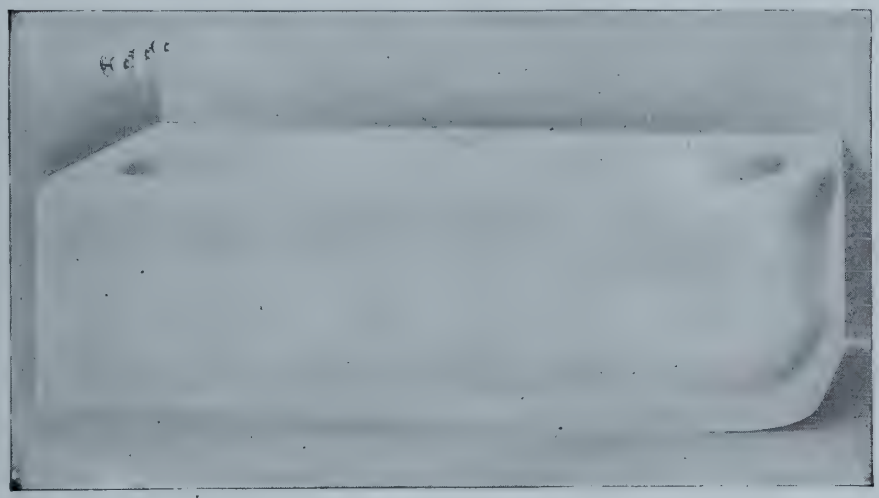
"Perfection" Built-in Baths

Made in One Piece Enamelled All Over



These Baths represent the last word in design and finish, and are made to build into Right or Left Hand Corner or into a Recess.

The "Perfection" Built-in-Bath is only 17½ inches high, therefore convenient. It builds into walls and floors, the absence of all dust-collecting cracks and corners meaning bathroom sanitation.

Made in 5 and 5½ foot sizes.

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THE VitrO Tank is sold by us and sold by you under an absolute guarantee. Workmanship and material is perfect. If not—if you or your customers discover a flaw that our inspectors failed to find—you get a new tank. Simply return the defective tank to the jobber where you got it and he is authorized by us to exchange it for one that *is* perfect. This guarantee holds good any time, provided, of course, the defects are not the effects of carelessness or abuse.

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The VitrO Tank won't be found defective very often—rest assured on that. No trouble with the VitrO—either for the customer, the plumber or the jobber. It never leaks because it is all in one piece with no seams or lining. It can't corrode, crack, or warp,—the VitrO isn't built that way.

Fitted with VitrO Lever, VitrO Flush Valve and VitrO Ball Cock tested to close off at any pressure from 1 to 150 pounds—and guaranteed to do so. All finishes, enamel, oak, mahogany.

Have you seen the VitrO Catalog? Write us or your jobber. You'll appreciate our guarantee.

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WE guarantee that should a VitrO Tank at any time prove defective through either material or workmanship, a new one will be given to the plumber by the jobber from whom he purchased it. In no case will credit be given to the jobber until the defective tank is returned and examined, and when a tank is returned same must be complete with all fittings; otherwise, credit will be given based only on the value of the goods returned.

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This guarantee does not apply to defects caused by carelessness or abusive wear and practice.

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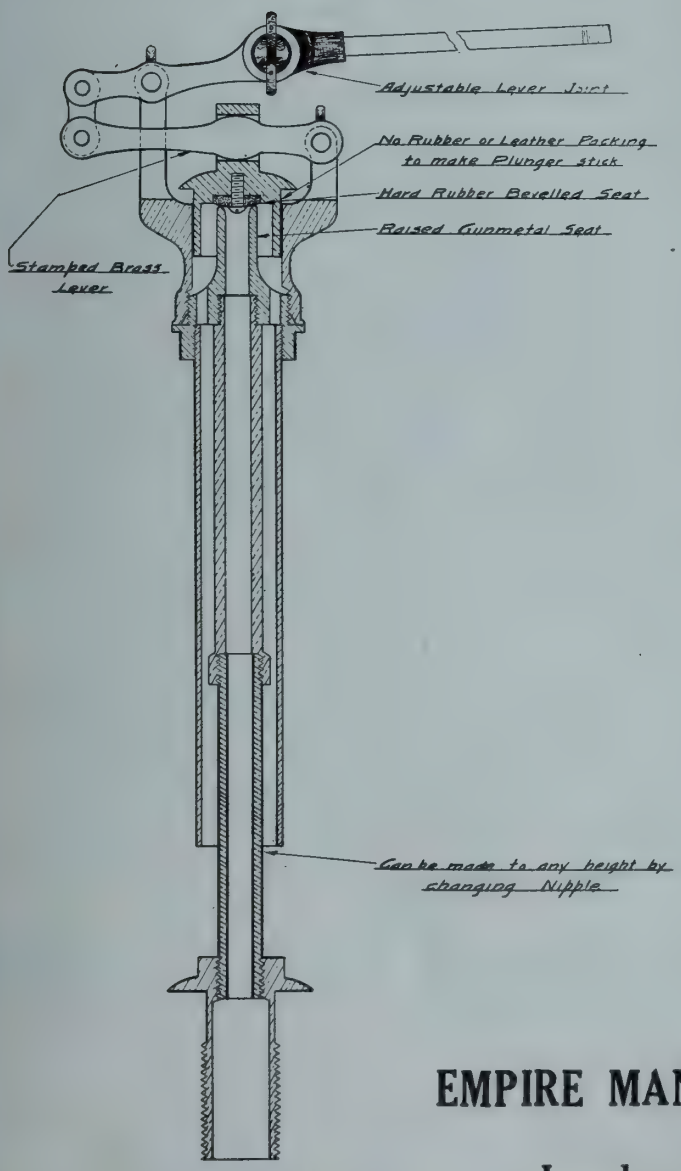
Galt Brass Company, Limited

Galt - Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, JUNE 15, 1920 No. 12

Introducing the New Empire "Victory" Ball Cock


Adjustable Lever Joint
No Rubber or Leather Packing to make Plunger stick
Hard Rubber Bevelled Seat
Raised Gunmetal Seat
Stamped Brass Lever
Can be made to any height by changing Nipple

THERE are many points in the design and construction of this new Empire fixture that make it the most efficient ever put on the market.

An admirable feature is the adjustable lever joint which allows for the quick adjustment of the float rod to meet any requirement of height or depth.

The plunger, unencumbered by rubber or leather packing, operates freely and smoothly thus ensuring instant action.

Note the hard rubber bevelled seat, the raised gunmetal seat and the stamped brass levers.

The "Victory" Ball Cock can be adjusted to any size tank by means of different length nipples.

The best class of workmanship and the finest materials are used in its construction, and every part of it is thoroughly tested before leaving our factory backed by the Empire guarantee of efficiency.

Our facilities are at your disposal. Write for our catalogue—specify your needs—we can be of infinite service to sanitary and heating engineers. Prompt delivery guaranteed.

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Canadian Made
Should stay in Canada
For Canadian trade.

EMPIRE MANUFACTURING COMPANY
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London and Toronto, Canada

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

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GETTING TOGETHER

A ittle "Straight Talk" to the Canadian Plumbing Trade

The Convention at Toronto, June 8, 9 and 10, of the Canadian Society of Domestic Sanitary and Heating Engineers, was a marked success and demonstrated a splendid tendency toward good understanding and mutual co-operation between the *Trade* and the *Manufacturer*. We have always been very strongly in favor of such definite policy, and heartily congratulate all concerned on the marked advance which has been made.

There is nothing like "getting together" to promote good feeling. Exchange of ideas helps everybody in the gathering, and any small misunderstandings can be quickly and easily explained away. Men who have imagined unkind things about one another find that their "grouches" were without foundation, and good is the result all around.

The establishment of a *Trade Extension Bureau* should be of the very greatest benefit to all connected with the supply business, whether maker or user. United forces working for mutual promotion of better plans and policies cannot fail to bring about a distinct elevation of the sanitary engineer calling, and prove beneficial to the public in a very large way.

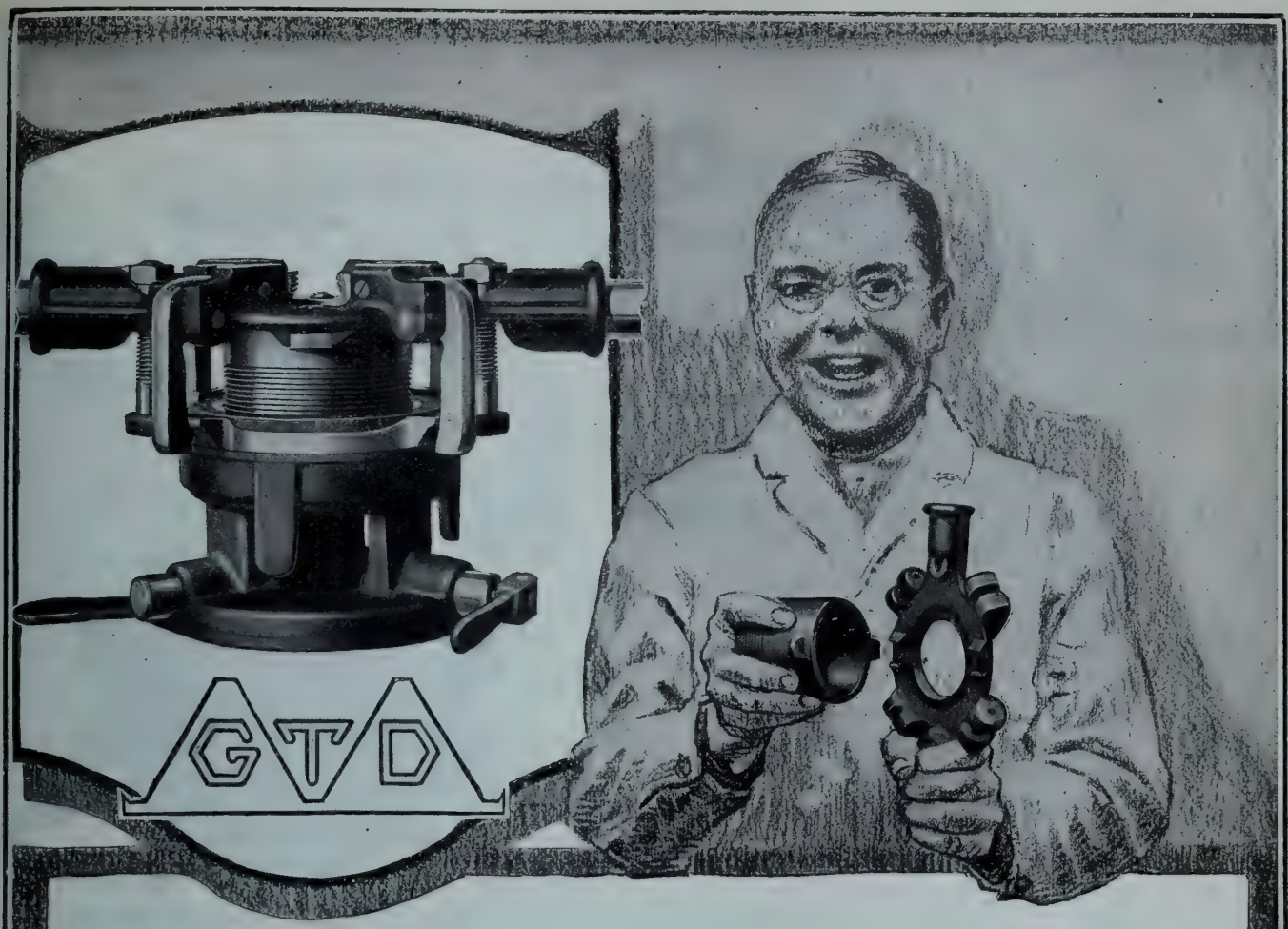
This is a day of progress. Old-fashioned ideas are giving place to modern and scientific methods. In no other service to the public is there greater opportunity for benefiting domestic health and happiness. We can now, even more than ever before, demonstrate the high motto—

"QUALITY, EFFICIENCY, and SERVICE"

TRADE B.O.T. MARK

THE CANADIAN BRASS CO.
LIMITED
GALT, ONTARIO

CANADIAN BRASS GALT ONT



BILL'S STILL LEARNING—*He says*

"Folks tell us you can't teach an old dog new tricks and I've been a plumber for 25 years, but b'gosh I'm learning yet. Watch me put this new lead screw on to a

Greenfield Receding Pipe Threader

I've no need to buy a new tool when the lead screw wears
I just send for a new lead screw—And another thing
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I can buy a single chaser which will match up with the set—"saves money."

No Unwinding on the Pipe or Off

10

Good Reasons

1 Quick Releasing
2 Quick Resetting
3 Adjustable Chuck
4 Replaceable Lead Screw
5 Replaceable Lead Nut
6 Chip Proof
7 Adjustable Chuck
8 Frictionless
9 Cuts Close Nipples
10 No Stripping

Cuts from one to two-inches

TRY THE TRIO

Bill is 100% for a Trio Die Stock, for smaller jobs—Always ready, 3 dies in one stock—No lost time—Cuts out overhead expense
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Canadian Plant of the Greenfield Tap & Die Corp

World's Largest Manufacturers of Screw Cutting Tools

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Wells Bros., Company, of Canada, Ltd.
Please send me your No. 42 Pipe Tool Catalog describing "The Complete Line" of Pipe Tools. I am especially interested in Threading Tools [ ] Wrenches [ ]

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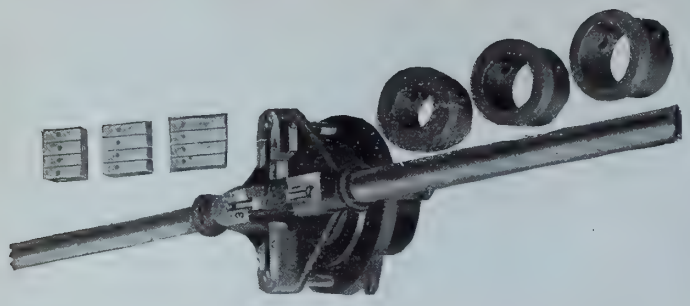

"Toledo" Adjustable Threading Tool No. 1, Capacity 1 to 2 in., inclusive.

"Jardine" and "Toledo" Pipe-Threading Tools

Cut Quicker with Less Labor

"Jardine" or "Toledo" Dies cut only with the mouth of the cutter. As the tool advances on the pipe the cutters open out so as to make a proper taper on the thread, the back of the cutters following in thread do no cutting, they merely steady the tool. The result is perfect threads at one cut.

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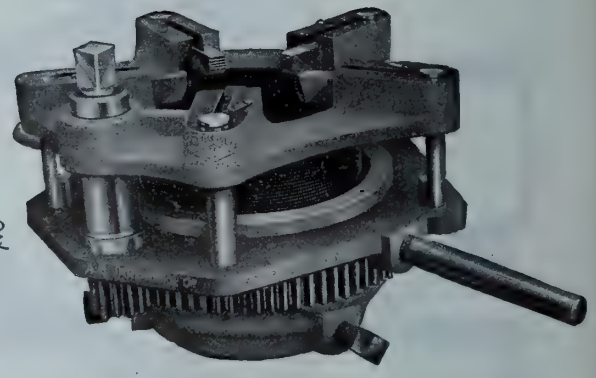
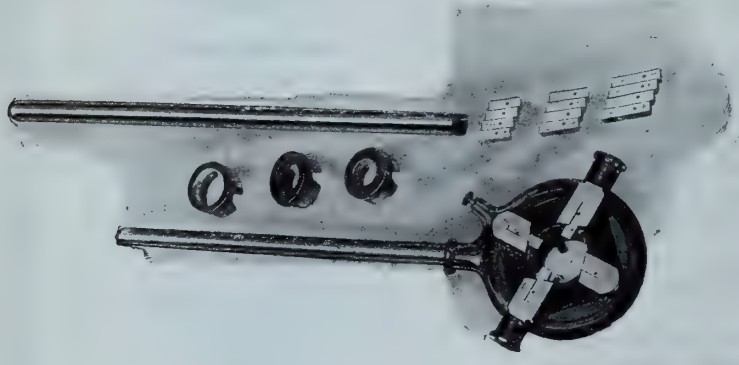


"Toledo" Geared Adjustable Threading Tool No. 2½. Capacity 2½ to 6 in. inclusive. Weight, 120 lbs.



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Built for Service

They can not get out of order, and they are easily understood. Long life and low maintenance cost are outstanding "Jardine" and "Toledo" features. Can be used in any position. Write for catalogue.

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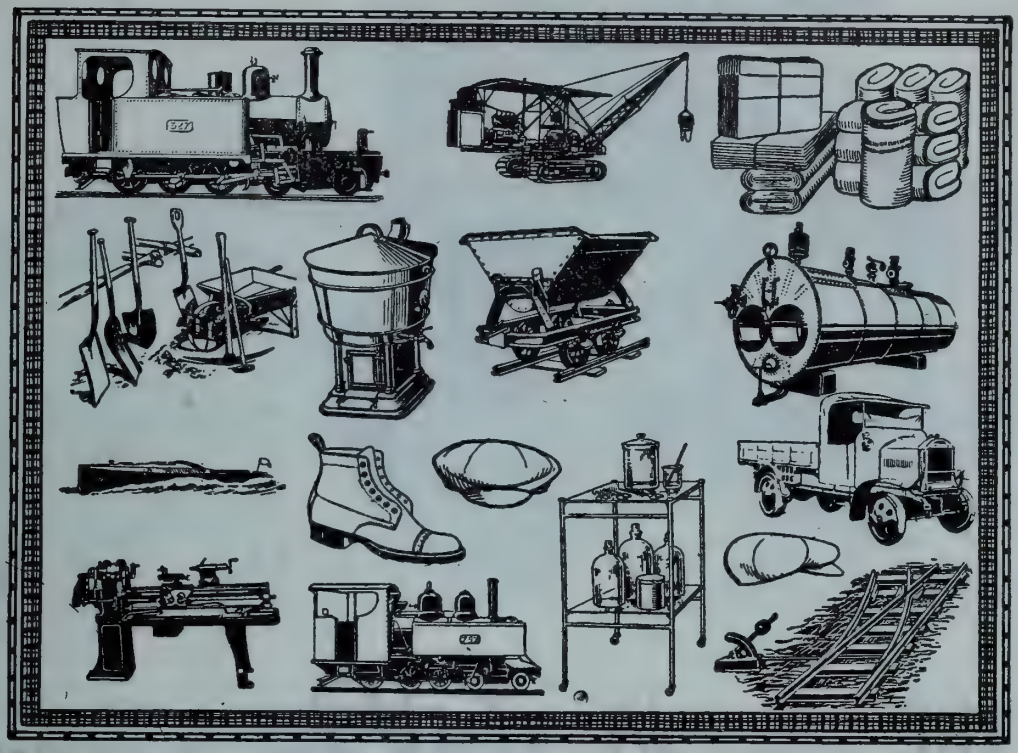

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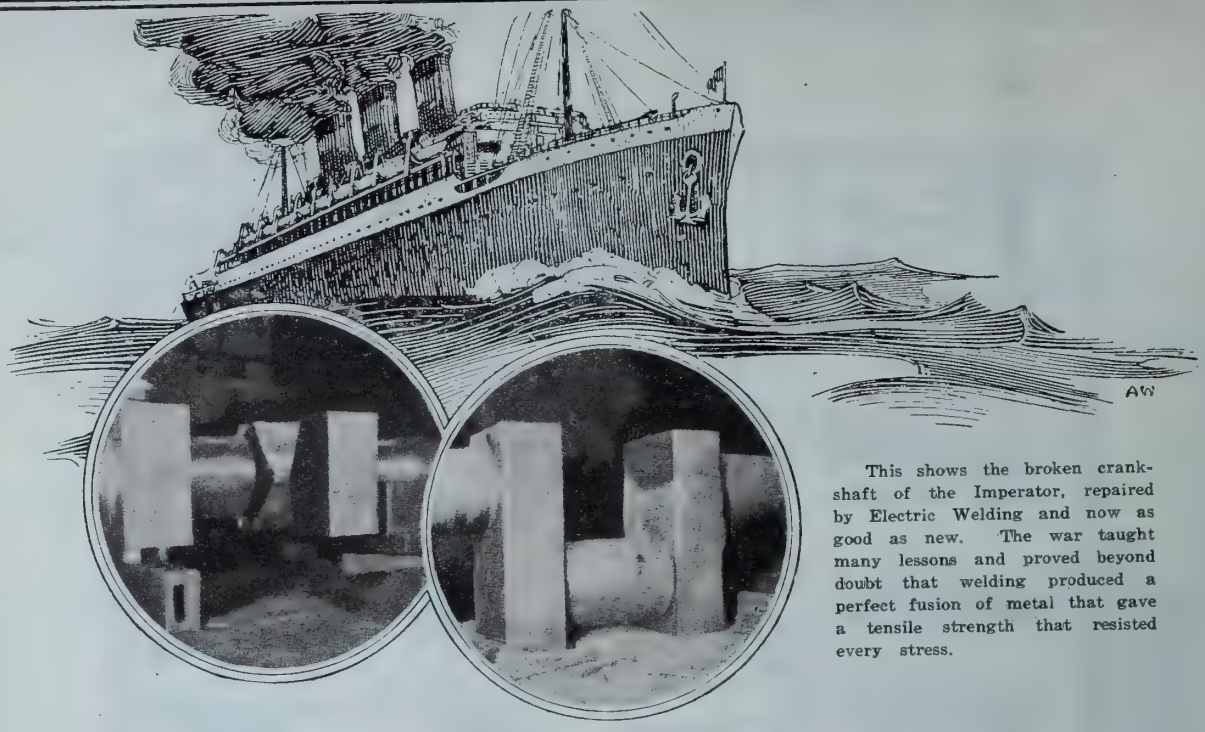

This shows the broken crank-shaft of the Imperator, repaired by Electric Welding and now as good as new. The war taught many lessons and proved beyond doubt that welding produced a perfect fusion of metal that gave a tensile strength that resisted every stress.

THE WAR AND *Electric Weld* RANGE BOILERS

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NO RIVETS — NO LEAKS
The Electric Weld Principle.

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Grand Trunk Railway and Hillingdon Ave.
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GURNEY-OXFORD

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ON

HOT WATER BOILERS

AND

TANK HEATERS

ENSURES YOU OF

ABSOLUTELY SATISFIED CUSTOMERS

The GURNEY FOUNDRY COMPANY, Limited

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BRANCHES: MONTREAL WINNIPEG CALGARY VANCOUVER

There Are Lots of Gate Valves

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but not all of them possess that neat appearance, combined with strength and stability, which characterizes

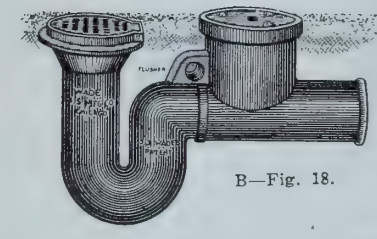
KERR IRON BODY GATE VALVES

Specify KERR'S (KEYSTONE) Iron Body Gate Valves on your next order, and let us prove what we claim for them.

Our Catalogue No. 5 tells all about them. It is yours for the asking. Write us to-day.

Approved by the Fire Underwriters' Association, and Registered by Boiler Inspection Departments of Ontario, Saskatchewan and Alberta.

THE KERR ENGINE COMPANY, LIMITED - Walkerville, Ontario



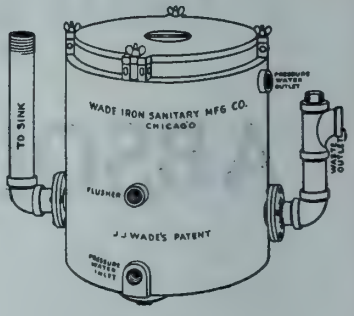
B—Fig. 18.

Wade Accessible Clean-out Drain Flushing Cesspool Back Water Gate Trap—Valve Combination.

Plan on Installing WADE Up to date FITTINGS in 1920

WADE Back Water Gate Valves and House Drainage, Sewer Flushing Fittings embody the latest improvements in design and construction.

They are approved by sanitary engineers and comply with health ordinances.



B—Fig. 27.
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

Wade Iron Sanitary Manufacturing Co. 551 W. Fulton St, CHICAGO

B—Fig. 126.
Wade accessible flushing cleanout floor wash and backwater valve combination.

B—Fig. 13.

Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.

Send for Catalogue

B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

Daisy Boiler No. 5

A "DAISY" Constructed for Long Service

Now is the time to seriously consider stocking your customers' essential requirements. A "Daisy" Hot Water Boiler, such as illustrated here, will be found to satisfactorily meet with this particular need for the modern home.

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We take pride in the fact that our form of construction has fitted this boiler for LONG SERVICE, and ABSOLUTE SATISFACTION.

Supplied in 22 sizes that will handle from 200 to 4,000 feet of radiation.

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THE entire editorial organization of the MacLean Publishing Company is at hand to co-operate with the editors of THE FINANCIAL POST. Specialists in many businesses write for THE POST. A practical farmer, in constant touch with the farming conditions, deals with crop prospects.

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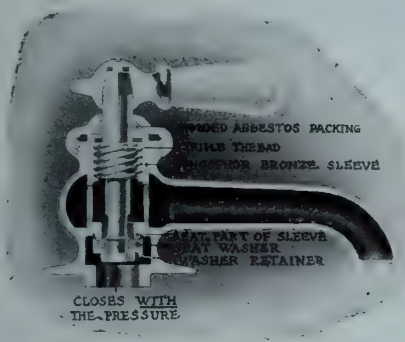

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Separate and distinct from all others. Closes with the pressure—not abruptly, so as to pound, but evenly and smoothly as a regular quick-opening pressure faucet. Designed on lines of beauty combined with strength.

At your service.

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No. 4044 — Stop and Waste with Patent Cap. Furnished with Lever or Tee Iron Handle, heavily japanned, substantially built.

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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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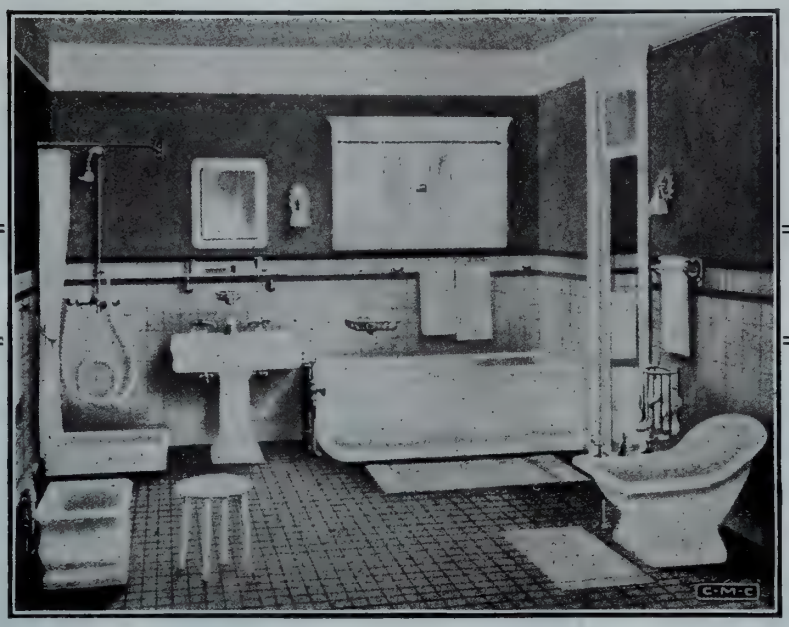

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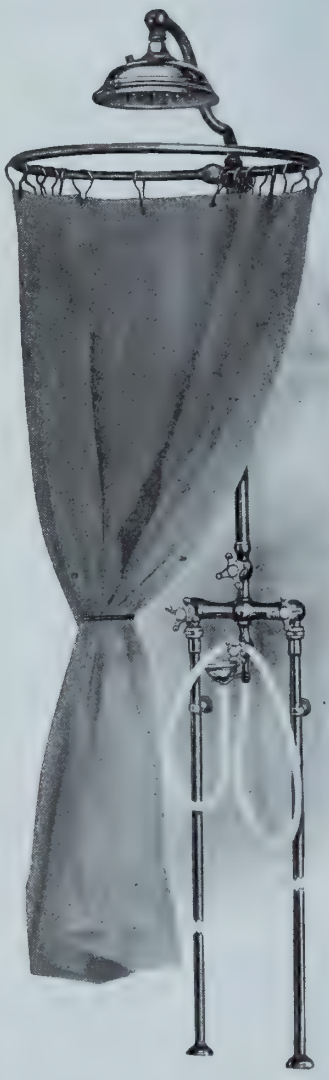

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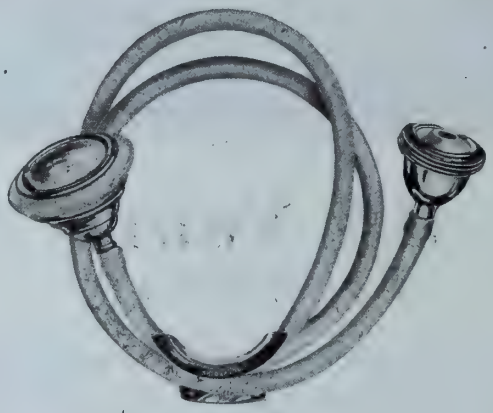

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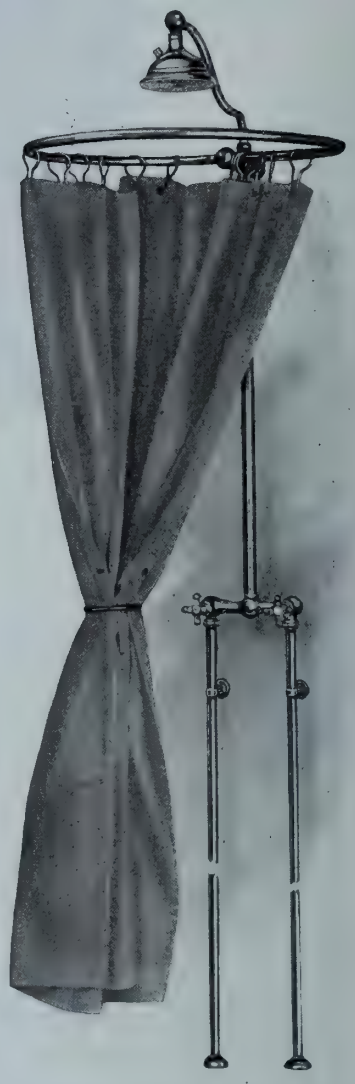

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Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

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Important Change in Taxes on Plumbing Lines

Practically a New Budget Issued by Finance Minister—Modification of Luxury Taxes to Lighten Burden on Common People—Plated Ware, Chandeliers, Etc., Affected—Tax on Amount in Excess of Exemptions Stated Instead of Tax on Total Value.

WHAT is described as practically a new budget has been introduced by Minister of Finance Sir Henry Drayton, and many important changes affecting plumbing lines have been made. Modifications of a far-reaching nature in the luxury taxes are proposed, the alleged object of the Government being to lighten the burden placed upon the common people by the taxes as imposed in the original budget speech. The changes as summarized herewith are not in effect until notice is given.

The principle of collecting a tax on the total value of any of the taxable articles on which an exemption amount was mentioned has been changed, and a higher percentage of taxation on the amount above the exemption is substituted. New levies on lines which are distinctly luxuries will be imposed to make up any deficit in revenue. Confusion is sure to result from this announcement. Thousands of dollars have been collected since the taxes became effective on May 19 and the Government has promised to refund this money if at all possible. For a few days at least the taxes announced on May 18 will still be in force.

Replying to questions Sir Henry explained that the proposed changes, if adopted, could not be retroactive and would not go into force until resolutions embodying them were formally introduced.

The new proposals of interest to the plumbing trade are as follows:

Ebony and imitation ivory toiletware which were formerly included in the tax of 20 per cent. collected by the retailer are now listed in the class on which a tax of 10 per cent. is to be collected.

No Nickel Plated Ware Taxed

One of the most important rulings is that under the new taxes the item of plated ware in the 10 per cent. list is changed so as to confine the item to articles plated with gold or silver not otherwise provided for as used in the household or office. As a result the tax is dropped on nickel-plated articles of all kinds.

Alter Tax on Chandeliers—To Be Paid Now by Manufacturer

The tax on chandeliers, which at present stands at 20 per cent. except when selling to churches, is altered to provide for a tax of 10 per cent. **to be paid by the manufacturer.** This tax was formerly collected by the retailer. Exemption of $12 each is made for chandeliers, wall brackets are to be taxed on the excess over $3 each and gas and electric light fixtures in excess of $3 and not elsewhere provided for, are to be charged on the excess of $3 each.

Middleman Protected in Sales Tax

One important amendment to the budget taxation calls for a variation of the one per cent. tax on sales. The original resolution provided that a tax of one per cent. in addition to the present duties of Customs and excise be levied on sales by manufacturers and wholesalers on importations. The Finance Minister's proposed amendment would add a proviso to the resolution reading: "That in respect of sales by manufacturers to retailers or consumers, or on importations by retailers or consumers, the tax payable shall be two per cent.

This means that in cases where manufacturers sell to the trade or to consumers directly, or where the trade consumes imported goods the tax will be two per cent. instead of one per cent.

Stamp Tax Applicable to Advances From Bank

Another important ruling of interest to the trade is that while under the original resolution a stamp tax of two cents was payable on every bill of exchange o r promissory notes for $100 or less, with an additional tax of two cents for every additional $100 or fraction of that amount. The proposed amendments would make this tax applicable to "advances made by a bank by way of overdraft."

No Refund of Taxes to Be Paid

The Finance Minister has intimated that there might be no refund of overpayment of taxes made under the original resolution. He has stated that he will consider the suggestion to make the luxury taxes payable by stamps.

These Taxes Not Effective Yet

The amended resolutions, as outlined herewith might become effective with the introduction of the Bill in the House or they might be made operative on and after a specified date. In any case the details appearing in the press constitute only information to the trade and as soon as the announcement is made that the resolutions have been adopted the trade will be expected to commence collecting the tax on this new basis.

Education by Co-operation Keynote of Convention

Advances Recorded by Each Provincial Branch at 23rd Annual Convention of Canadian Society of Domestic Sanitary and Heating Engineers in Toronto—Manitoba Association Taking Steps to Become Affiliated—Application of New Taxes Discussed.

THE three-day convention of the Canadian Society of Domestic Sanitary and Heating Engineers, just concluded, marked a pronounced advance in the interests of co-operation and the plans for the improvement of conditions in the plumbing trade throughout Canada. A splendid representation from Eastern provinces was on hand, but though the West was not represented in person, steps were taken during the convention to enable the raising of sufficient funds to bring the vice-presidents representing each province, to future annual conventions.

Reports of Provincial Representatives

At the first morning session on Tuesday, June 8th, reports from the vice-presidents of each province were read, action being deferred to the incoming officers in most cases. The report of James Mackie for Manitoba stated that there were fifteen members in the provincial organization which was operating as part of the Builders' Exchange, and that while it was five years since it had been affiliated with the Canadian Society, consideration of the question of again becoming identified would be taken up. Mr. Mackie declined the offer of the Presidential chair, feeling that it was not time yet for this honor to go to the West.

Survey of Year's Work

Following the receiving of reports of committees President Maxwell made a short survey of work which had been accomplished during the past year. He stated that a vote was being taken in Ontario in regard to the formation of an Accident Protective Association in connection with the Workmen's Compensation Act. He also pointed out that the question of licensing heating installers was now before the Government in an effort to avoid accidents from faulty installations.

Application of New Taxes

The application of the turnover and luxury taxes was discussed, it being pointed out in a report from the Inland Revenue Department that the tax was on materials not on labor except that utilized in the manufacture of materials. Building contractors were classed as retailers, and the contractor who manufactures material for use such as metal cornices, etc., is categorized as a manufacturer. No materials in connection with plumbing equipment was taxable except chandeliers. The plumber is to absorb the 1% turnover tax in his cost of operating, no direct charge being made to the consumer. G. Clapperton pointed out that on unfinished contracts made before May 19th the tax was to be charged and dealers were then to await a ruling as to the legality of the collection.

Auditors were appointed as follows: T. Maxwell, Toronto; G. S. Bowman, Preston; D. Bethune, Montreal.

Educational Night

Educational night was held on Tuesday evening at which an address on "Efficient Accounting and Business Management," was given by D. MacLulich. President Anglin of the Canadian Association of Building and Construction Industries spoke on the work of the organization and asked for the affiliation of the Canadian Society. He outlined the intention of the organization to form a joint conference board of five members under a chairman appointed by the Department of Labor, to act in an advisory capacity in the settlement of labor troubles. The plumbers would be allowed to elect one of the five members of the board.

After considering the question of affiliation with the association. Harry Mahoney as spokesman for his committee recommended that the Canadian Society endorse the Association providing they had one member on the board as outlined. Some objection was made on the ground that the plumbers would prefer to deal with their own labor difficulties, but Mr. Mahoney replied that the Conference Board could be a help if required but the Association would not be tied up to accept its award. President Maxwell said the Board would have supreme power in the event of labor troubles and he was not in favor of any Dominion Board having authority over the local conference board. The resolution was defeated.

At the Wednesday morning session a telegram was read from the society members in New Brunswick stating that organization was proceeding steadily and that additional members had been secured.

The committee appointed to consider the apprenticeship report, as shown elsewhere in this issue, moved the adoption of the suggestions put forward and recommended that a copy of the report be forwarded to every provincial vice-president and put into effect as soon as possible. This plan was adopted.

Extend Appreciation to Trade Papers

Consideration of the President's address by the committee brought forth the following recommendations: That the appreciation of the Society be extended to the trade papers for their support; that there be closer co-operation with the manufacturers and wholesalers; that careful study be given trade extension matters by the incoming executive. The employment of a permanent secretary was already approved but the committee were unable to suggest means of securing sufficient funds to carry on the work. The division of Montreal local into four sections as in the case of Toronto was also suggested and adopted.

In his report President Maxwell pointed out that he thought the provincial societies should each have a director in the Canadian Society in order to strengthen it and make it more representative of the Dominion.

(Continued on page 38)

NEW OFFICERS OF CANADIAN SOCIETY

Officers of the Canadian Society for the forthcoming year, as elected at the convention just concluded, are as follows:

President: — Harry Mahoney, Guelph.

Vice-President:—Telles Latourelle, Montreal.

Secretary: — Garrett F. Frankland, Toronto.

PROVINCIAL VICE-PRESIDENTS

Alberta: — R. J. Priestley, Calgary.

British Columbia:—(No election)

Manitoba: — C. D. Kirk, Winnipeg.

New Brunswick:—G. Dorman, Moncton, N.B.

Nova Scotia:—(No election).

Ontario: — Thos. J. Minnes, Brantford.

Prince Edward Island: — J. T. Mernaghan, Charlottetown.

Quebec:—E. G. Brousseau, Quebec.

Saskatchewan: — T. J. Alexander, Moose Jaw.

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SANITARY
John Wright, Toronto.

HEATING
A. Houde, Quebec.

VENTILATION
D. A. Bethune, Montreal.

LEGISLATIVE
J. Francoeur, Montreal.

APPRENTICESHIP
G. R. Baker, Toronto.

ESSAY
H. Weinraub, Toronto.

Manufacturers, Jobbers Support Trade Extension

Conference of Manufacturers and Jobbers with Convention of Canadian Society Brings About More Harmonious Relations—all Interests Prepared to Give Financial Support to Plan to Elevate Plumbing Trade and Increase Use of Plumbing Fixtures.

A CONFERENCE with representatives of the various manufacturers and wholesalers houses was held at the Wednesday afternoon session. There was a splendid representation from all branches of the trade, and complete harmony and unity of purpose existed.

In introducing the question of co-operation, President Maxwell pointed out that the Association felt they should have more co-operation from the interests represented. "In the past you have done as much as you knew how, but the time has arrived when something more must be done," he stated. "You men do not get all that you are entitled to but you get most of the money in this business."

Continuing, he made reference to the fact that there has been recently a big change among the electrical operators.

"A few years ago every one had good displays and later these all disappeared. But within the past four years there has been a great change, and now nearly every electrical operator has a good display to show he is conducting an up-to-date business. This has taken place because of the co-operation between the operators and the manufacturers. During the last month the printers have also taken up the same thing. They have appointed a man to organize the printers and they propose to go into every shop to show the printer how to run the business. We have come to the conclusion that we do not know how to conduct the plumbing business as it should be conducted, and we believe that the only way to organize the trade is to put on an educational campaign with the co-operation of the manufacturers and supply houses. Then, not only we, but you as well will get great results. If we were trained and educated to be salesmen, a great output would be built up of plumbing goods. Every plumber would be a salesman for you.

F. Armstrong Outlines Work Accomplished

Speaking of the work of the committee appointed by the Manufacturers and Supply Houses, Mr. Fred Armstrong, manager of the Port Hope Sanitary Mfg. Co., stated that the representatives of these interests who had conferred with members of the Ontario Society at their recent convention, had been struck with the enthusiasm shown by the master plumbers of that organization for something along the lines of trade extention.

"The upshot of it was that a committee was appointed to consider the matter of trade extension," said Mr. Armstrong. "Twelve members were called together and met for a free discussion of the matter. A sub-committee was later appointed and a report from Mr. Minnes on the subject was subsequently considered I made an investigation into the operation of the Trade Extension Bureau in the United States. Mr. W. Woolley's address at the Ontario Society convention gave some indication of the good which had been accomplished, but it was not as great as the amount of work which has really been done by that body."

At this stage Mr. Armstrong read a paragraph from a report of the Central Association of Supply Houses of the United States, as follows:

"From a personal standpoint, and as a large manufacturer and jobber, it seems this Trade Extension movement is capable of doing more for the good of the industry than any movement that has been attempted, and is entitled to support on the part of every jobber in the United States."

HARRY MAHONEY

of Guelph, Ont., elected President of the Canadian Society of Domestic Sanitary and Heating Engineers for 1920-21 *at the annual convention. Mr. Mahoney held the office of Vice-President last year, and succeeds F. R. Maxwell in his new position.*

Recommend Trade Extension Bureau in Canada

Continuing his address Mr. Armstrong stated, "With that evidence I am authorized to say that under certain conditions we are prepared to recommend to the Supply Houses the adoption of a similiar bureau in some part of Canada. The conditions which apply are, 1, Program prepared applicable to the territory; 2, Suitable man as secretary defined; 3, a budget in keeping with the field to be covered. If these conditions are suitable and we feel the members of the trade are behind it, the supply houses are prepared to give it financial support.

"This is not to be an association affair among the manufacturers and jobbers, each one speaks for himself. We do not think it wise for anything to be attempted in the name of your society either."

Benefits to Extend to Whole Plumbing Trade

President Maxwell assured Mr. Armstrong that as far as the association was concerned the good of the plan was not intended to apply only to association members, but to the whole trade. T. J. Minnes stated that they wanted everyone to join in the movement whether he was a member of the organization or not. "Eventually we feel that every man who plays a part in this movement will see the benefit of joining our society."

Representatives of manufacturers of heating lines, who had not formerly been approached, stated that they were satisfied to give the matter their best consideration.

K. Allison, Toronto, stated that the trade didn't want to be told what their profit should be or what their overhead should be, but they wanted to be shown how to figure such matters for themselves in an intelligent manner.

Good Representation of Manufacturers

Among the representatives of manufacturers present were the following: Messrs. Wingate, Steel and Radiation Ltd.; Gurney, The Gurney Foundry Co.; Horwood, The James Robertson Co.; Wallace, Standard Sanitary Mfg. Co.; Gunn, The Bastion Morley Co.. Laporte, Ind.; Arnold. Galt Brass Co.; Archibald, The Dart-Union Co.; Wilks, Canada Pipe & Steel Co.; Taylor, Taylor-Forbes Co.; Cook, Steel and Radiation Ltd.; Stevens, Empire Mfg. Co.; Cook, Good Mfg. Co.; Warden, King Co.

Speaking of the work accomplished by the Trade Extension Bureau along certain lines, Mr. Wineraub stated that half a dozen good showrooms conducted by plumbers would be more effective than all the manufacturers' showrooms in the

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Reminiscences at Annual Banquet

Manufacturers, Wholesalers and Plumbers Well Represented at Annual Banquet in King Edward Hotel—Healthy Future Predicted for the Plumber in Canada—Spirit of Co-operation Between Each Branch of Trade Now Evident.

THERE was a splendid representation of manufacturers, wholesalers and plumbers at the banquet held at the King Edward Hotel on Wednesday evening, and the reminiscenses spoken of by pioneers in each branch of the trade were enjoyed by all.

A toast to The King was proposed by the chairman of the evening, past president, F. R. Maxwell. A toast to Our Country was proposed by Alderman Phinnemore, and responded to by Controller Ramsden.

A toast to the Canadian Society, was proposed by Mr. Hugh Wallace who made some further reference to reminiscenses of fifteen years ago in view of some discussion which had centered around this matter at the afternoon session.

Toast to Canadian Society

"I hardly expected to get such an introduction as I received to-night, nor to be asked to propose this toast," said Mr. Wallace. "This afternoon some of the speakers were asked for reminiscences of things that happened at conventions years ago and Ben Noble seemed to think he was the only old-timer left. He seemed to think that they had all retired and were living in luxury. As I looked around the room to see if there were any members present who attended the meetings 18 years ago, I saw but two or three. There was Watson and Mahoney, and I don't think many others. It just shows how the personnel of the society changes, in those days the society was in its infancy, and I want to say the Canadian society has nothing to regret in what it has accomplished in the past seventeen years. The city of Toronto, I believe, is the mother of the society which started out with the object of improving the position of its members: of establishing some system of apprenticeship control. What I want to point out is that the Master Plumbers' Association, as it was then called, of the city of Toronto was the main reason or cause of the adoption of the many sanitary plumbing by-laws and regulations. The Board of Health, of course, looks after the health of the citizens, but it was really the sanitary conditions which we have been instrumental in making that has made the health of the city of Toronto so satisfactory.

As was said this afternoon, this is the end of one era and the start of a new era in the history of this society, and I think the new era and new programme will further elevate the plumbing industry. If a person wants plumbing work carried out, he goes to a man dressed in good clothes, and with a fairly good place of business to-day, which was not the case many years ago, which shows that improvement has already been made, and we can look for a bright future. As an old member of this association I have great pleasure in proposing a toast to the Canadian society and its future success."

Response to the toast to the Canadian Society was made by Harry Mahoney, Guelph, as follows:

"Fellow members, manufacturers and jobbers, being honored by having my name mentioned to respond to this toast, I cannot refrain from saying a few words in spite of the fact that I believe Controller Ramsden's story is applicable to me. We do a work in every community, which, if properly done, safeguards the health of that community. I remember one time in Guelph I was asked to go to a house where they were figuring on changing their old fixtures for new ones. After looking it over I told the gentleman what would be necessary to make a good job and quoted him accordingly, but he said he did not want to pay so much money and I did not get the work. Some months later I met the same gentleman and he again asked me to come and see his plumbing. I told him I had already done so some time previous. He said he had it attended to by another plumber, but it was so unsatisfactory that he decided to have me do it. We sometimes spend much good time and money doing good work which is not appreciated. I believe there is no body of men who fill a greater want in any community than properly qualified plumbing engineers."

Telles Latourelle, Montreal, made a very interesting address in French which was applauded heartily, and then added: "I will express myself in English to say I am glad to be in Toronto to have assisted in the start of the great work as we did to-day. In Montreal we have been hoping to accomplish just such a task for the past five years, and shall work real hard for the benefit of the Association. I can't find the right words to express myself in English, but I want to say we are with you heartily, and I think you know what I mean."

Toast to Manufacturers and Wholesalers

A toatst to the manufacturers and wholesalers was proposed by president T. J. Minnes of the Ontario Society, as follows:

"Mr. Chairman and Gentlemen: I had the pleasure last evening of attending a banquet and heard of many men who had started at the foot of the ladder and worked up. One man was credited with rising from the baker wagon and had become manager of a branch concern. What appealed to me most was the great trouble so many of us have in getting off the wagon in these times. In proposing a toast to the manufacturers and jobbers, I have pleasure in proposing a toast to the men and concerns who are the very heart of our industry. It is manufacturing that has built up Ontario, and I wish to express my hearty thank personally to them for the spirit in which they have offered to make this industry of ours, an industry to be proud of in the future. I would ask you to all rise in a toast to the manufacturers and jobbers who are with us in this task."

A toast to the manufacturers and Wholesalers was responded to by Mr. MacMichael, as follows:

"Mr. President, Members of the Society and Gentlemen:—I was very much struck with the remarks of Alderman —— in proposing a toast to our country. I notice he placed the plumbers in a paradise, but notice he did not mention the manufacturers. If we go back a few years when it was the practice to have banquets like this one, which brought results, it will be remembered that the manufacturers and jobbers have always tried to work with the contractors wherever possible, and I feel sure that to-day's meeting will have the desired result. The manufacturers are not in the smooth road that some people seem to think they are in, and if the members of your association were in closer touch with the manufacturers we could get more ideas of what your difficulties are and thus draw ourselves closer together by a common union and not only could the manufacturers help you, but you could in many ways help them. The manufacturers are to-day laboring under very heavy difficulties as you are, and I can assure you as far as the manufacturers are concerned it is to our common interest to see that such an organization should be supported by them, and also by the citizens of all Canada. If the meeting can be carried along and continued in such a way as it wound up this afternoon it will bring real results, and I am quite satisfied that the heating manufacturers are in accord with you and will give the support which you deserve."

Toast to Our Industry

A toast to "Our Industry," was proposed by Mr. Fred Armstrong.

"Mr. Chairman and Gentlemen: When I am surrounded by my old comrades I feel like one of the Old Guard and would like to fight your battles as I would fight my own. I was glad to hear the way your president spoke this afternoon and wish I were again back in my old place. Your president has developed a great facility of saying just what he wants to say and saying it exactly right that he is taking a very extensive part in the life of his municipality, and so well trained is he in the art of presenting the glad hand that they have elected him at the polls, and if he continues we will no doubt some day have the pleasure of addressing him as "Your Worship"—the Mayor. I was given much pleasure by the way the intricate and delicate matter was brought up and presented, which would have done justice to a debating society. It seems to me your work of education has already done a wonderful amount of good, and you should be able to present your sales subject to your customers in the same logical and convincing order, which will mean more and better work for you and material for us to supply you. Every manufacturer here tonight will give testimony that the manufacturer works always in the interest of the sanitary engineer. I can say the same for the jobber. I think I can conscientiously say that there is no one works harder and more intelligently than the jobber who keeps the stock and distributes the goods to you. Speaking for myself in justice to the jobber, I can say that the jobber gave me my start, and I have no hesitation in paying tribute to those to whom I owe a large measure of success. Now we get to the point where I think the jobber is entitled to a great deal of consideration. From the manufacturers' standpoint the distribution would be very expensive unless it were handled by someone who could keep a stock of all articles. It is also the most convenient way for you to purchase and for the manufacturer to distribute. I think I am absolutely correct

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Proper Installation of Plumbing More Important Than Services of Lawyer or Doctor

C. V. Kellogg of The Kellogg-Mackay Co., Chicago, Addresses Annual Banquet of Canadian Society on Standardization and Trade Extension—Master Plumbers' Education Worth Much to the Consumer.

A SPLENDID address on Standardization and Trade Extension was given at the annual banquet by Mr. C. V. Kellogg of the Kellogg-Mackay Company of Chicago. This address contains much valuable information for the trade in Canada, and for this reason is reproduced in full as follows:

"I feel tonight somewhat like they say of Wm. M. Everett when he was arguing a case before the supreme court of the United States trying to get clear terminals into a city. Mr. Everett in preparing his argument always wrote long speeches, and as he was reading his argument before the court he got mixed up. He stopped, and, wiping his glasses, said to the court: "You see, I am in the same position as the railroad—I have no terminal facilities."

"In being asked by your secretary to discuss with you the subject of trade extension and standarlization as it applies to this industry, I feel that "I have no terminal facilities." It is a great pleasure to me to come here from Chicago for the reason that in 1899 in this very building a man who is responsible for what little success I may have had in association work met me here. We then discussed the condition of the industry on the part of the manufacturer, especially in boiler and radiator lines and it was from the words of wisdom that I received from him that we called a meeting of the manufacturers of New York. I was appointed chairman of that meeting in 1899 temporarily it was understood for one month, but I remained in that office until 1906. It was Mr. Ed. Gurney who gave me the valuable ideas. He was a friend of mine and I was new in the game and he taught me much That is the start of the first trade extension.

"You must pardon me if in discussing these problems I may have to refer to the conditions as they exist in the U.S.A. because I am not familiar with conditions which exist here, but I believe they are the same whether in Canada or in the United States. When the Government had said to us during the terrible conflict that we must curtail production and increase operation on something to aid the increase of material necessary to carry on the war, the question that interested us was "What can we do to save the plumbing and heating industry in the United States?" Mr. Maddock conceived the idea that it might be possible to save much repair work by replacing new materials for old in buildings. Some of us who were interested in the different lines were glad to go to a meeting in Chicago, where we studied it out with the sole idea and decided that we must say to the trade and the plumber and heater operators, to go out and endeavor to get the business of taking out old and putting in new and up-to-date goods, because that could be done without antagonizing the Government. While we were just starting on the program the armistice was signed. I was requested to attend the National Master Plumbers' Association convention in St. Louis two years ago and give them a talk on this subject. I found the men assembled were eager for anything that would better their condition, and I want to say that the plumbing industry in the U. S. is as near a profession to-day as the lawyer or the doctor, and that it is more important to the life of the citizens of the country that plumbing and heating should be properly installed. In the United States and the same here in Canada the common user of plumbing wants it, but when he has received the bills of the plumber, believes that the plumber is a robber and thief. At that convention two years ago, with the idea that the time was ripe for the plumber to be placed on the pedistal where he belongs, we started in to bring about a closer relationship between the plumber and the jobber and the manufacturer. In one of the New York papers it practically stated that

D. A. BETHUNE

Head of the Montreal Master Plumbers' Association, who was one of the delegates from Montreal attending the convention of the Canadian Society of D. S. & H. E.

the plumber was a robber, and one of the first works of the association under the new plan was to bring action and make them retract.

Mail Order Competition

"I do not know whether it is so here or not, but in the United States we have at the present time the distribution of plumbing to over $10,000,000 a year through the mail order houses. In the United States it has been the idea of the plumbing industry from the plumber's standpoint that he cannot sell any material unless he instals it. Gentlemen, I take the floor and am going to say to you tonight: 'That idea is the idea that is killing your industry.' Why? Because we believe that we are all free citizens of a free country and have a right to transact business as we should. Now, when a citizen comes into your place of business and begins to talk about an article of plumbing, why should you tell him you can't sell it unless you instal it? Right away you have him on the defensive to see that you do not put anything over on him. Why can't you say to him, 'Yes, I will sell it to you. The price is so and so.' Then, later, ask him how he is going to put it in, adding: 'You know the health of your family depends on the proper installing of your fixtures and piping.' That is how Mr. Wm. J. Wooley does business. He has some goods the same as the mail order houses list, and shows them if they are asked for. He says when they are seen and compared with his regular lines, the regular goods sell every time. If the plumbing industry can give the public to understand that they can buy the goods through the plumber they will not go seeking the mail order houses to get the goods. I know the plumber says sometimes, 'Well, if I sell it to them, they will get someone else to put it in.' Did not your education cost you something, and are you not in better shape to sell your service to the consumer than the journeyman? Now, why do we need trade extension? It is to educate the trade and assist the trade and give them new ideas of how to do business; to show them how to keep their books and assist to make them better merchants and to see that they get a little profit to lay aside for the future. We interested the University of Minneapolis in this problem and they put in classes to educate and make it part of their instruction. They had 105 students come to their class. The instructor took a young boy just out of school who was simply doing figures, told him how to figure. In the class there were four travelling salesmen, and out of the lot the boy was the only one who got the correct result. Now that is what we are endeavoring to do in the United States. We are sending out to the plumbing and heating contractor complete sets of bookkeeping, complete sets of estimating sheets. It is true many of the plumbers already know these things, but it is the competition you get from those who do not know how to do it that is the difficulty. And how are the manufacturers interested? Because it is making the contractors prompt in meeting their payments, making them better risks, and they ultimately discount their bills, and hence the manufacturer and jobber can afford to pay money to finance this proposition. In Chicago fourteen of our houses were carrying $1,780.000 in accounts in Chicago alone, while to-day the total is $367.000, and we are doing a larger business. And further, the plumbing fraternity's committee came to us and asked us to keep it up, and make all pay promptly, but show no partiality to anyone. I want to say to you on behalf of the Trade Extension Bureau, if we can do anything to assist our brothers over here in Canada, we will be glad to do it.

Committee on Standardization

"Now, what is the next subject? When we got into this great conference during the conflict, the Government said to us: "You must eliminate many different kinds of goods so as to increase production." So we said to ourselves that if we could do it during the war why not in time of peace? The result was that a year ago in Atlantic City somebody proposed at the meeting that they adopt a national code, but as the New York manufacturers predominated the meeting and were not in favor of this the motion was lost by a very small margin. Then the Illinois State master plumbers introduced a resolution asking that a committee on standardization be appointed to draw up a national code. They argued, and properly, that the

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Ontario Association Reports Progress

President T. J. Minnes' Report Outlines Ontario Membership—Conferences in Districts Deal With Local Problems—Committee to Confer With United Association

ONTARIO SOCIETY OF DOMESTIC AND HEATING ENGINEERS

Thomas J. Minnes, President

Ontario Vice-President's Report to the Canadian Society of D. S. & H. Engineers

Mr. President and Gentlemen,—

It is my pleasure to report to you the satisfactory progress of your society in the Province of Ontario. Your membership is now included in the following cities and towns: Ottawa, Peterboro, Brockville, Toronto, Mimico, Oakville, Hamilton, St. Catharines, Welland, Niagara Falls, Port Colborne, Brantford, London, Chatham, Windsor, Sarnia, Galt, Preston, Kitchener, Guelph, Stratford, and several other smaller places. You will notice that the above list represents nearly the whole of the province geographically, although we have not as yet the majority of operators in all of the above-named places, but hope to before our next convention.

Ontario has this year divided itself into groups or districts, whereby the operators in these districts may occasionally have conference relating to their own particular problems, also to assimilate information and ideas that may be reported to the directors for their attention. Each group is in charge of an executive officer whose duty it is to look after the interest of the society and the trade in general. This system, although in operation scarcely two months, I am pleased to report is proving a wonderful success, as has been evidenced in the help received in settling our May Day labor problems and in the interest manifested at several meetings for the furtherance of trade extension.

Ontario has appointed a conference committee whose duties are to confer with a similar body composed of the United Association. This conference board has not met as yet but is due to meet upon hearing from the U. A. representative. The indications of mutual benefits are promising.

Ontario has interested itself in the trade extension idea, and with this end in view has met the manufacturers and jobbers, at which time a committee of twelve was appointed to investigate the feasibility of such a venture. This committee was simmered down to six who have had several conferences that have led up to a favorable understanding as to the requirements and aims of such a movement. I am confident this idea will prove a wonderful benefit to the trade in general, but every man must take his place to help the idea along to a final success, and in my opinion this is the greatest opportunity the plumbing fraternity has had in many a long day. It is now up to you to prove your worth; it is a test of your ability to grasp and further your interests to a higher level. You will be aided by educational features to accomplish this purpose, and my greatest wish is for your success.

Our province is blessed with good will and honesty of purpose amongst its membership, and through their efforts the operators at large have benefited greatly through our society.

I do not wish to burden you with a report of all of the actions of the Ontario Society, therefore I would respectfully refer you to the reports of the officers in the "Sanitary and Heating Journal" of April 12, which covers our year's work with the addition of the foregoing report.

Respectfully submitted,
THOS. J. MINNES,
Pres. of Ontario.

NEXT MEETING IN QUEBEC

The City of Quebec has been decided upon as the next meeting place for the annual convention of the Canadian Society of Domestic Sanitary and Heating Engineers, to be held about the same time in June, 1921.

CONVENTION DELEGATES

Among those attending the 23rd annual convention of the Canadian Society were the following:

E. G. Brousseau, Quebec City; H. Lavigueur, Montreal; J. E. Walsh, Montreal; D. A. Bethune, Montreal; A. Charette, Montreal; J. Watson, Montreal; T. Latourelle, Montreal; Frank R. Maxwell, Toronto; Harry Mahoney, Guelph; G. F. Frankland, Toronto; T. J. Minnes, Brantford; John Wright, Toronto; George Clapperton, Toronto; H. Weinraub, H. A. Farthing, R. C. Belyea, Thos. M. Maxwell, K. B. Allison, S. H. Adamson, G. R. Baker, F. H. Gentle, W. A. Lord, J. Penn, H. Ruddick, J. Preston, E. Byrne, L. LeGrow, T. H. Ferguson, F. A. Wiles, R. Paterson, all of Toronto. B. Noble, London; V. Bowman, Preston; C. Avery, Hamilton.

Other Toronto delegates included A. F. Passmore, J. H. Gowan, W. Blackburn; W. Brittain, Hamilton; E. Cardwell, Welland; W. H. Pinkett, Galt; T. Cowan, Brantford; H. Taylor, Brantford; F. J. Sylvester, Stratford.

PROPER INSTALLATION OF PLUMBING

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time had come when the plumber must put in better goods and come to some basis of doing away with obsolete and cheap lines. The resolution went through and a committee was appointed. I suggested to the committee that they could not put standardized rules into effect without the co-operation of the master plumbers and jobbers, for there are many manufacturers not in the association, and if the plumber should go and request certain articles to be made not according to standard, somebody not in the association would make them. You will see our interests are absolutely neutral and we must work together. A conference was called in Chicago in September and decided to establish a bureau of standardization, of which I was elected chairman. I did not know what kind of job I was taking then. We appointed committees; three on a committee from the National Plumbers' Association, three representing the manufacturers, and a member from the Supply Association in the West, and a member from the Eastern Supply Association. A committee was appointed to cover each different line of the industry that we are interested in. These committees took the matter up by correspondence in the various lines and reported back to the chairman of the committee. On the 12th day of May we called a meeting of the presidents of each of these committees, and there are the minutes of one day's session. (Mr. Kellogg produced a large volume of these proceedings).

Labor Has Money Craze

"A strictly eight-hour day?" a manufacturer asked.

"Yes, as near as they are to eight hours over there. In Trenton to-day they are working thirty-six hours on, twelve hours off, and another thirty-six hours on without a break. Labor has the money-craze. They are working in the mills from 11 to 7, from where they go right to the potteries and work from 7 to 5, leaving them from 5 to 11, or six hours for eating, sleep and recreation each day. Now, I ask you how long can any human being stand that sort of thing? And yet that is the labor situation in the United States to-day, because we are over six million common laborers short. A short time ago at a meeting we had a representation of 95 per cent. of the industries of the U.S. and every manufacturer was asked to report to the secretary the wages per hour they were paying for each class of labor and number of hours worked. They reported from 55 hours to 80 hours a week, but, of course, that is satisfactory to the workers as it is based on the hour.

"Now, let us get back to standardization. In the U. S. we have hardly started our programme yet and yesterday I had proved to me the results we have attained so far. In the plumbing brass goods alone we have eliminated over 12,000 different sizes and items and so on with the other lines, soil pipes, etc. Why should we have ¾ in. and ⅝ in. compression stop when the opening is only ⅝ in. on either? The amount of obsolete goods that are still being manufactured is enormous and these will be cut out with great saving, and there are to be no more decorated radiators. All these goods being standardized will allow us to increase production, which is most urgently needed. In the United States it is known that we have 367,000 bath tubs on order which we cannot supply. Our production is only 40,000 per month. Speaking for my own house we have 1,493 tubs on order and cannot get from the manufacturers, and these are mostly due to be installed in new houses where people are already living without the proper plumbing. So why should we not get to work and get down to the manufacturing of the staple goods which are so needed, especially when we could make a better line of goods. In the United States we have arrived at the

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Federal Department of Health Required

Health is of National Importance and Should Receive More Attention From the Government—Toronto's First Plumbing Ordinance Passed in 1887—Evils of Speculative Building—Present Regulations Leave Too Much to Providence

Report of Chairman John Wright of the Committee on Sanitation and Legislation before the 23rd Annual Convention of the Canadian Society of D. S. & H. E.

REPORT OF SANITATION AND LEGISLATION COMMITTEE

Toronto, June 8, 1920.

Mr. Chairman and Gentlemen:

I appreciate the opportunity of presenting for your consideration a subject matter of great importance to the welfare of Canada.

In respect to the part to be played by the national government in this campaign, there may be legal limitations within which the federal authorities can work, and these will have to be respected, but there can be no doubt that health is a question of national moment, and any legislation which prevents or hinders the national government from exercising its due prerogative in the matter is faulty and should be amended. If, however, the field is limited, then the responsibilities for engagement in good active work are the greater. In this country the effect of a well organized and equipped federal department of health would do much to strengthen the hands of the various provincial health authorities, and would firmly establish public health with all that it means of blessings to the people of every class—there would be such a marked advance all over Canada as would surprise us all.

One of the essential features in the application of sanitation to the general health of the community is efficient methods of sanitary plumbing, heating and ventilation. In aiming to protect and prolong the life of the people, our efforts should be such that legislation upon this important problem may be in the best interests of the people in general.

The many problems of federal, provincial and municipal sanitation are all so intimately associated and interwoven that to begin the enumeration of the functions of any one of them is to at once get in touch with the other two. There, are, however, some duties and powers which are more peculiarly suited to each, and yet for their efficient performance require that authority should be centralized, and when it is remembered that unless health measures are efficiently performed they are worthless, for they do not secure the desired end. Hence, we are more and more realizing in this country that health is of national importance, and the federal government should devote more attention to all matters having for their object the betterment of the health of the people than it has during the past forty-five years.

Sanitation and ventilation have gained world-wide prominence through the endeavors of the medical profession, scientists, sanitary engineers and public bodies, for a number of years, to introduce measures that could be accepted as standards of efficiency, and by the earnestness of such men, there has been evolved a sanitary system based on fundamental scientific principles that can be adopted practically in any portion of the world. For the absolute protection of public health, legislation should be so directed as to secure the highest degree of efficiency in our sanitary system. Like all legislation of a restricted nature, we find a great deal of opposition from those who are ignorant of the real value of such legislation, but with a process of education in the adoption and enforcement of restrictive law, by which the future of Canada is protected and benefited, it is then readily welcomed as being essential to the national welfare. And it is with this view that I introduce this subject for the consideration of this convention.

N. H. ROANTREE

Vice-President for the province of Saskatchewan whose report to the Canadian Society annual convention reported big strides in the formation of a live organization in the prairie province.

General Conditions in Canada

In the Dominion of Canada we have no generally recognized standards regarding sanitary plumbing and ventilation, but are governed by a multiplicity of laws and by-laws, adopted by the governing bodies of our cities and towns and enforced according to their own interpretations. In the year 1887, Toronto adopted the first plumbing ordinance in Canada. This was followed by many others, until to-day the majority of our cities and towns have some form of ordinance. In some we find a recognition of splendid principles making for effectiveness, but rendered void because of non-enforcement. In many others no recognition whatever that any law exists, with the result that even sanitary plumbing is installed in such a way that it becomes a menace to public health.

In the majority of our larger cities, there is a desire to study and meet the demands of the plumbing business, so much so that we continually see them amending their by-laws to meet changed conditions. Many have adopted the plan of examining and licensing the men engaged in this occupation, with such beneficial results that many others contemplate following the same procedure, which is claimed as an essential point in placing sanitary plumbing on a proper recognized basis in its relation to health. From the Atlantic to the Pacific we have many varieties of sanitary plumbing, some a distinct credit to the forethought of our boards of health and municipal councils, and others an absolute disgrace to the name of sanitation. Some of the abuses call for serious consideration.

Smaller cities and towns will probably become large centres, and means to improve sanitary conditions by a universal standard should be the aim of all. Even now, with the advance of sanitary education, we see many of our cities working on amendments to their laws. Too frequently they lack knowledge of the science of sanitation, and do not recognize any set principles, being merely governed by what has been satisfactory in some other place. So that, if by some action, of a federal body or central authority, a set standard were established it would prevent the useless experimenting and continual alteration of laws, and would serve the real purpose for which such laws are intended. There can be no serious objection to legislation along these lines, as already all the important cities and towns, with few exceptions, have some form of local legislation.

Evils of Speculative Building

One of the most disturbing factors to be faced is the speculative builder whose whole aim is the amount of pro-

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Forced Hot Water Heating System is an Economy on Fuel Burned

Heating Committee Report to Annual Convention—Steamfitter Should be More Scrupulous in His Work—Heating Systems Not Generally Installed According to Rules

REPORT OF THE HEATING COMMITTEE

June 8, 1920.

Gentlemen, members of the Canadian Society of the Domestic and Heating Engineers:

As chairman of the Canadian Society of Sanitary and Heating Engineers, I have the honor to submit the following report concerning heating systems and ventilation installed in the Province of Quebec.

In the interest and welfare of the general public in the installation of heating systems capable of giving satisfaction, it is always difficult to obtain or convince a client that the cheapest apparatus is not always what should be installed, and it is very often the fault of the heating contractor, who is very often afraid to ask the price required to make and assure a good job. What I wish to demonstrate is the advantages deriving from a well installed heating system, either hot water, steam, or hot air, according to the conditions of the building in which such system is more adaptable for the construction. It should be in the interest of all responsible master plumbers to give satisfaction and thereby maintain a good reputation for the plumbing trade in general.

We have had to witness and inspect some installation of heating in private houses which were simply abominable and should not be called heating apparatus. A steam fitter should be more scrupulous in his work and have at heart to install heating systems worthy of a steamfitter, and by so doing we will advance and educate the helper steamfitter also encourage him in learning his trade.

Hot water heating systems are not generally installed according to rules outlined by the capacity of the sizes of piping. Some parts are so overloaded and others so deprived of utility that renders useless the workmanship. A well-balanced heating system is always certain to more or less give satisfaction should it be short of radiation. It is also necessary to demonstrate to the client the best heating system that should be installed in a private house, and I am of the opinion that hot water is more healthy than steam apparatus, although it is more expensive to install, but far cheaper to operate.

I would take advantage of this occasion that we have for a number of years past devoted our energy to the forced hot-water heating system, and we have met with very good results where installed, and specially where centraiization is made; that is where a number of large buildings are isolated it is of great advantage to the consumer for the saving of fuel. In some cases it has been a saving of 35 per cent. of fuel and much cheaper to run the system.

In centralizing a new plant of heating it is a recognized fact that the specialities necessary to the forced system will somewhat increase the cost of installation, but the satisfaction derived from same will repay in no time by the saving of fuel alone. The forced hot water system of heating will guarantee a good circulation of the water throughout the radiator and more especially in pipe coils where most of the time only two-thirds of the radiation is heated.

After considering all those facts we have adopted a system and have also obtained the patent rights for Canada and United States, and have annexed with same the Latourelle hot water heater, which forms a part of the forced hot water system which can be installed for heating any kind of building from one storey to forty storeys, from 10 square feet to any quantity, and from one building to any number of buildings.

Steam Heating System

Steam heating installations are very often disadvantageous because it does not give satisfaction. We mean a gravity system, but if a one-pipe or two-pipe system is installed there will be more satisfaction by employing air line one-pipe system or two-pipe system by vacuum on the return pipe, and such systems are Dunham Vapor, Reliable Vacu, Equipment Webster, Grible, and several others, too numerous to name here, all of which are well known to you, and I may add that all their tables and data on the various systems have given good results when followed closely.

Ceiling Vents Crude and Dangerous

Ventilation Committee Suggests Discussion in Public of Best and Simplest Methods of Ventilation—This Branch of Business Badly Neglected—How is Saskatchewan Cold Proof House Ventilated?

REPORT OF VENTILATION COMMITTEE

The Canadian Society of Domestic Sanitary and Heating Engineers:

Gentlemen,—

Your ventilation committee beg to make the following report:

We regret to state that this branch of our business has not made the necessary strides and advancement compared to our sanitary system.

We would suggest that the matter should be discussed to bring before the public the best and simplest modes of ventilation for public buildings and private dwellings. At present, throughout many of the provinces of the Dominion of Canada, the only compulsory ventilation is the ceiling vent from rooms where waterclosets are installed. In the majority of cases this has proven to be a source of danger rather than a benefit, being installed along side of the ventilating soil pipe and very often both outlets at the same level.

We would recommend that the several provincial vice-presidents take the matter into consideration and bring before their different governing bodies in the provinces the crude and dangerous ceiling vent, as, in many cases, installed.

In the ventilation of public buildings such as schools, churches, theatres, halls, etc., architects and engineers are giving greater attention to this end of the buildings, and with the perfecting of the thermostat has given good results when under the control of a competent stationery engineer. We also draw your attention to the unit system of ventilation which eliminates the large ducts, fans and immense stacks of radiation where each room is governed singly and has given very satisfactory results in lessening the cost of installation and operation. We consider this a step in the right direction to give the public a less expensive and improved ventilation system.

We have no doubt that many of you have seen the much written of Cold Proof House built in Saskatoon in which the Electric Radiators are turned off at 8.30 o'clock p.m., with the temperature inside sixty-seven degrees and outside it is twenty-four degrees below zero, the temperature has only fallen to fifty-four degrees in the morning. If any of the members from Saskatoon have seen the house they may be able to let us know how the house was ventilated, as to date we have been unable to obtain any information regarding same.

We would also beg to draw attention to the unsatisfactory ventilation of railway and street cars which, with our modern appliances, can be easily improved and should be drawn to the attention of the different companies.

Trusting that the foregoing will be given your careful attention, we are,

Yours respectfully,

THE VENTILATION COMMITTEE.

Provinces Can Use Appropriation

Dominion Government Has Set Aside Funds for Technical Education and Extension of Heating Trade—Positions on Federal Board of Health Should be Filled Only by Men Experienced in Sanitation—Provinces Should Standardize Plumbing By-laws, Heating By-laws, Workmen's Compensation

Report of Chairman J. T. Blyth of the Legislative Committee before the 23rd Annual Convention, Canadian Society of D. S. & H. E.

Mr. Chairman and Members of the Canadian Society :—

As chairman of this most important committee during the past year, I feel that I have been somewhat remiss in the carrying out of the duties connected therewith and I can only put forward as an excuse two reasons. The first is one which will appeal to all the members, and that is the past year has been a particularly trying one and has been characterized by unrest and uncertainty, politically and otherwise. And the feeling which made itself felt at our last meeting, that there was a time of expansion ahead, has had to content itself with a certain amount of marking time all due to the aftermath of the war. The second reason is a personal one, and although it by no means serves as an excuse for seeming neglect, it has militated to a great extent in permitting me to give the office the attention it needs. This personal reason is, that during this period I have given up the plumbing and heating business and contracting and will from this out devote myself to the distribution and sale of special lines in heating and plumbing goods in Eastern Ontario. My twenty-five years' experience in the retail business should enable me to be of service to my former confreres in business. My resignation as member is now in the hands of the secretary, Mr. Frankland, but he has insisted on a legislative report of some kind for this convention and it may be of service if I sketch briefly the matters which are of present importance and make this a sort of valedictory and farewell to the members of the Canadian association, whose friendship and co-operation has been so long enjoyed by me.

The continued association as a fellow craftsman through the past years, which is now severed, will always remain a bright spot in my memory and in my new vocation there is now pointed out the fact that I can be of some use in promoting that closer bond between the manufacturers and jobbers and the retail trade, which to me should be the chief endeavor of this year's convention. Pardon this preamble and let us get down to legislative action as it has affected and will affect our trade.

Dominion Legislation

First, Technical Education. While the Dominion Government has set aside a large appropriation for this most important function, the spending of the money is in the hands of the provinces and it behooves us in our provincial societies to see that in the promoting of Technical Education, advantage be taken for the furtherance of Technical Education in plumbing and steamfitting, and that our various branches be ever on the alert to assert themselves aggressively in seeing that not only competent instructors be appointed, but that practical instruction in the use of definite equipment be provided and that the apprentice be linked up by some definite method to enjoy the benefits of this work.

GARRETT F. FRANKLAND

The popular secretary of the Canadian Society of D. S. & H. E., whose splendid program in connection with the annual convention was highly appreciated by the delegates.

Second—Housing

Here again, the Dominion Government has provided money, which is in the hands of the Provincial Legislatures to disburse. Likewise in this respect it is the duty of all provincial and local associations to bestir themselves in seeing that the channels be kept free for the active functioning of this work.

Third—The Creation of a Federal Board of Health

This new department has lately come into being. While it is not yet fully developed, there is no doubt that it will concern itself, in so far as it does not interfere with provincial rights, with the important subject of sanitation and the chairman and members of future legislative committees should follow closely the development of this new department. If officers or directors in this department are to be appointed, whose chief duties are along the line of sanitation, then this association should put itself on record, that these positions should be filled by the Civil Service Commission only by men who have practical experience in sanitation and strict examinations should be held to ensure the proper appointments.

Fourth—New Taxation

Through a decision lately made, all nickel plated goods entering into the plumbing and heating work whether under contract or sold at retail, used and sold by the retail master plumber, are subject to a luxury tax of 10 per cent. and this tax must be added to the cost of all nickel plated material by the retailer and paid by his customer and the tax money turned into the Dominion Government. In the case of contracts all nickel plated goods must be separately figured and the 10 per cent. tax shown on contract estimate. It is hardly necessary to comment on this tax as absurd and unwise. Nickel plated goods in plumbing and heating are just as necessary as wood, brick and plaster. This tax instead of lowering the cost of building will raise it. I submit that a strong resolution should be put out by this convention in this regard and forwarded to the proper authorities.

PROVINCIAL LEGISLATION

First—Plumbing By-Laws

How near we are in Ontario to obtaining a new comprehensive provincial law governing plumbing throughout the province the writer cannot say. Suffice it to say, that this law is prepared

As provincial legislatures have to deal with this matter, a committee of this association might be named to endeavor to see that plumbing by-laws for the various provinces be standardized and made as nearly as possible the same.

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EDITORIAL COMMENT

EDITORIAL NOTES

THE INCREASE of the basis of workmen's compensation under the Ontario Act from 55 to 66 2-3 per cent. must be regarded as an encouragement to idleness, under certain conditions. Employees who can draw two-thirds of their present high wages and do nothing, are not likely to be in any hurry about getting back to work.

* * *

THE PRINCIPLE of taxing sales adopted by Sir Henry Drayton has been inaugurated in France, where there is a levy of 1 per cent. on every business transaction from the small purchase by the housewife to deals involving millions. It is estimated that France will raise around $2,000,000,000 by this method.

COMMENCE NEW ERA FOR PLUMBING TRADE IN CANADA

EDUCATION by co-operation was the keynote of the recent convention of the Canadian Society of Domestic Sanitary and Heating Engineers, held in Toronto, and the assembly of representatives of the trade from different parts of Canada marked a step forward in achieving the desired results, namely, of raising the standard of the plumbing trade throughout Canada. It has been felt for some time that the plumbing goods manufacturers and supply houses were the only branches of the trade which were developing and reaping at least a portion of the rewards to which they are entitled. Owing to the lack of definite co-operation existing between the trade and the manufacturers and jobbers in past years, no advances had been made, but it only required the suggesting at the recent conventions of both the Ontario and Canadian societies to make the subject a live one and steps were immediately taken to bring about better harmony and unity of purpose between the various branches of the trade. As result a definite policy is being decided upon and the supply houses and manufacturers are in favor of the adoption of a Trade Extension Bureau in Canada similar to that which exists in the United States. This organization has done a great deal for the plumbing trade in that country and a bureau working along similar lines in Canada will do much to elevate the trade. The bureau will co-operate with the plumbers in educating them to better methods of merchandising, taking in questions such as salesmanship, advertising, window and store display, accounting systems, cost finding, etc. These are subjects with which the average plumber is very little acquainted and with days of keener competition ahead, he feels the necessity of having an education along these lines. The adoption of such a bureau in Canada is therefore an important matter and marks the commencement of a new era for the plumbing trade in Canada.

WESTERN INDUSTRIAL EXPANSION AMAZES EASTERN MANUFACTURERS

REPRESENTATIVES of Eastern industrial enterprise, now visiting the West as delegates to the convention of the Canadian Manufacturers' Association in Vancouver, are amazed at the rapid development of manufacturing in the West during the past ten years, prior to which agriculture was the predominating industry which characterized Western Canada. Eastern manufacturers are learning something of the importance of the West from an industrial standpoint and the industrial congress will, it is hoped, have the effect of bringing East and West into closer harmony and co-operation for the further development of manufacturing.

Figures for 1917, showing the production of industries in the Prairie Provinces, indicate an increase of 100 per cent. in totals for Manitoba as compared with 1915, an increase of 133 per cent. in the case of Alberta, and an increase of 180 per cent. in the case of Saskatchewan.

It is pointed out by Western manufacturers that the people of the West are still maintaining thousands of workers at industrial points in Eastern Canada in producing goods which could be manufactured in the Prairie Provinces, particularly in view of the fact that material for these goods is now shipped from that territory into the industrial centres and again returned. Such a process also increases the cost of manu-

factured products to the Westerner in whose country the raw materials are produced.

Another evidence of Western industrial growth is the fact that the Prairie division is one of the most flourishing divisions of the Canadian Manufacturers' Association. In the three Western provinces the association has a membership of 516, or one-eighth of the total membership. Many new industries have been established in recent years and many Western plants are carrying out enlargements to meet the needs of the day. Steel and iron products, paints and specialties, building materials, etc., are among the leaders in industrial expansion.

RETAILERS ARE GOVERNMENT TAX COLLECTORS WITHOUT REMUNERATION

IN connection with the levying of new taxation through the medium of the retail merchant, some dealers are making a passive resistance to becoming tax collectors for the Government without remuneration. The plan as outlined virtually commandeers merchants as collectors of taxes and makes them the butt of any abuse which may be forthcoming in their application. Merchants have been called upon to bear a good deal of the opprobium in connection with the high cost of living and their task will not be rendered any lighter by the new development. With the addition of the new Luxury and Turnover taxes it will mean that many people will blame the merchant for the high prices they will have to pay for the articles so taxed.

GOVERNMENT TAKES UP EVERY REVENUE-PRODUCING AVENUE PRESENTED

NOW that the real meaning and effect of the new taxation is more clearly outlined as result of two weeks' discussion, it is evident that a large number of additional sources of revenue are being located. It looks as though there was some justification for the remark made at the meeting of the Montreal Wholesalers' Guild to the effect that the Government never knew there were so many avenues of revenue production until they were besieged with technical questions from those who had made an expert's analysis of the application of the new taxes.

During the past week a number of new rulings have been secured by Sanitary Engineer, as outlined elsewhere in this issue, and it is evident that the Government is taking advantage of any doubt which exists. This week it is noted that the tax applies to articles which, if sold individually, would be exempt as being under the price mentioned, but which, if sold in groups and the total price exceeds the figure mentioned for one article, tax is levied on the total amount.

Articles plated with antimony are also subject to the tax as plated ware, and producers of lead, copper and zinc are subject to the Turnover Tax as manufacturers.

The important point now being emphasized by the retail trade is in regard to the mark up to be made where the passing on of the 1% Turnover Tax by the wholesaler makes a fractional charge. One retailer points out that in some cases a misunderstanding on this point will either result in a loss for the retailer or a mark-up approximating 5%. Another retailer indicates that a 1% tax on sales will amount to 10% to 12% of the net profits in the average hardware business with a turnover of $20,000 to $25,000. Still another opinion expressed is that the luxury tax is not high enough to curtail buying, and yet if it were any higher the Government would lose its revenue as result of curtailment. There are a number of very interesting phases of the question and these are dealt with at length in this issue.

CHANGE IN TAXATION MEASURES

A NUMBER of important changes have been made in the application of the new taxation, according to the announcement of the Minister of Finance. On first thought there has been some condemnation of the Government for having put certain taxation into effect and collecting money before the system was in working order, which condition has made necessary the changes which have been made, but it is a difficult matter to take into consideration every small detail in framing the budget, and it is only when a complete expression of opinion from experienced men representing all branches of trade is available that the regulations can be made most equitable. It is therefore gratifying to note that the Government has taken note of the representations made and has acted upon them by making substantial reductions in a number of lines sold in the hardware and other trades.

Canada needs

A home that should have a three bathroom installation.
Why suggest less ?

SUPERIORITY PURITY DURABLE AS THE PYRAMIDS

FEW people realize what the growth of over a million in the population means in a country like Canada, spread as it is over such a wide area.

When you figure the average of about five people to a home; when you take into consideration the annual fire loss and depreciation, you can begin to form some idea of the number of homes needed in Canada to-day to house her rapidly growing population.

It is estimated that there has been in the neighborhood of a two million increase in Canada's population since the last general census. During the war the increased population was not taken care of. To-day the need for more homes is most pressing and you as a master plumber are in a position to encourage the build-

Port Hope Sanitary

Factory :
PORT HOPE, ONTARIO

Toronto Show Rooms :
119 KING ST. EAST

Winnipeg Office :
405 TRIBUNE BLDG

Port Hope Enameled

more homes

There's big business to be secured in rural districts.

ing of these. It's in your interest and in the interest of the country generally to put your shoulder to the wheel and speed up the building in your locality.

Point out to builders that there is no particular advantage in delaying building—the need is growing more urgent, the money is in circulation and though prices are higher than normal it is safe to assume that while Canada is demanding more and more housing for the people there is little or no reason why pre-war prices will again prevail for some time.

Encourage more building—better building. Instal Sanitary Equipment that is a credit to the home. Have you a Port Hope Sanitary "For the Home" Catalog and Roughing-in Booklet?

Mfg. Company, Limited

Halifax Office :
McCURDY BUILDING, HOLLIS ST.

Head Office :
ROYAL BANK BLDG., TORONTO

Montreal Showrooms :
234 BEAVER HALL HILL

Plumbing Ware

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

OBITUARY

Daniel Regan, plumber and tinsmith, of St. Stephen, N.B., is dead.

BUSINESS CHANGES

Fort William, Ont.—Jenkens Co., plumbers, has sold out to J. W. Looney.

TRADE NOTES

Waterdown, Ont—Frank Speck is building a new solid cement shop on Main Street for his tinsmithing and plumbing business.

WIARTON'S APPROPRIATION FOR WATERWORKS

Wiarton, Ont.—Wiarton will spend $3,000 or more on waterworks improvements this year.

PLUMBER IS HONORED

R. J. Priestley, plumbing and heating engineer, was re-elected president of the Alberta Provincial Association for the present year at the recent annual meeting.

FIRST TRIP TO PACIFIC COAST

Montreal—Leo. Burns, of John Burns & Co., Bleury Street, Montreal, is taking a trip to the Pacific coast on June 2nd. This is Mr. Burns' first trip to Vancouver and he expects to spend about five weeks away from Montreal.

INSTAL NEW HEATING SYSTEM

Kitchener, Ont.—At a meeting of the Separate School Board it was decided to instal a new heating system in St. Anthony's school. The present system has become inadequate for the size of the building.

WILL MEET DURING SUMMER

Todmorden, Ont.—Owing to the importance to the district of the sewer and water schemes, the Todmorden Ratepayers' Association decided to hold their meetings during the summer months, and not to adjourn for the holiday season as in former years.

NEW PLANT FOR CANADIAN BRASS CO. NOW IN OPERATION

The new plant of the Canadian Brass Company at Preston, Ontario, is now in operation, and the full range of B. O. T. closets and other such products are now being manufactured at this plant. This development advances Canadian industrial production as this line of products was formerly imported from the United States. The new plant supplements the factory in Galt, Ont., and is outfitted with the most up-to-date machinery in this line of manufacture.

CONTRACTS

Moncton, N.B.—Heating, plumbing and electric wiring in Imperial Block for L. H. Higgins. Contract price $16,-300.00. Work now proceeding on this job; heating and electric wiring in Lounsbury store building. Contract price $8,100.00. Completed April 30th; heating Academy building of this city. Price about $40,000.00. Work will commence June 1st.

MONTREAL OFFICE FOR W. G. EDGE, LTD.

Montreal—W. G. Edge Limited, whose head office is in Ottawa, has just opened a Montreal office at 116 Craig Street West. This will be in charge of J. H. Storey who as manager will conduct a regular plumbing and heating business at Montreal.

Mr. Storey will be much missed in Ottawa boating circles and he will naturally miss the old associations of the Capital City.

WINNIPEG'S HIGH PRESSURE SYSTEM IN DANGER OF BREAKDOWN

Winnipeg — The local high pressure waterworks system is in imminent danger of serious breakdown.

So F. A. Cambridge, city electrician, warns civic authorities in a written report on the damage electrolysis has done to water mains in the business district.

"The system already has been affected by electrolytic action and leaks have appeared, the electrician declares. Large sections of the system probably would be put out of commission in case of a break in the mains," the report states.

$164,000 FOR NEW SEWERS

Montreal—It is proposed to entail an expenditure of approximately $164,000 to complete trunk sewers for the use of the South Shore towns of St. Lambert, Longueuil, Greenfield Park and Montreal South, all these towns being adjacent to one another. For the cost of this, the necessary capital will be contributed by the municipalities in question, and, as well, the Harbor Commission of Montreal, which body controls extensive waterfront rights on the South Shore. The work, according to the ruling of the Public Utility Board just given, will be carried out under the joint direction and supervision of an inter-municipal committee, comprised for the most part of the Mayor and one councillor of each municipality.

KINGSTON FIRM GIVES UP PLUMBING DEPARTMENT

Kingston, Ont.—H. Wolfhard & Co. announce that they have disposed of their active interest in the plumbing, hot water and steam heating department of the business. The announcement is as follows:

"Messrs. Ruppel and Neeb, who have been in our employ for many years and who have wide experience in these branches, will take charge of the management of the department of plumbing and heating, under the firm name of Ruppel, Neeb & Co., on the premises of H. Wolfhard & Co., 31 King West.

The hardware business and tinsmithing and hot air heating will be continued by ourselves as heretofore."

MERGER OF PIPE MACHINERY MANUFACTURERS

John H. Hall & Sons, Ltd., Brantford, Ont., has now formed a merger with the Williams Tool Corporation of Erie, Pa., one of the oldest and largest manufacturers of pipe machines in the United States. The announcement of this merger will no doubt be of particular interest to the users of pipe threading machines for both these concerns specialize on pipe machinery, and the new corporation will have a capitalization of close to one million dollars.

The local plant of the concern will be known as the Hall plant of the Williams Tool Corporation, and several special machines are being installed to speed up production. The personnel of the new concern will be as follows:

Mr. Brill, who will be president, is a consulting and manufacturing engineer of wide experience. Mr. Davis, senior member of Davis & Co., New York, will be chairman of the board of directors, while Leslie S. Hall himself will take over an executive position between the two factories and becomes vice-president Mr. A. R. Hall will be manager of the local plant and Mr. E. L. Williams will have charge of the local office. Mr. E. W. Hall, is retiring as secretary and treasurer of the company, and Mr. E. L. Hall, who is now in England, will no doubt continue with the new corporation on his return.

Optimism is Voiced in Quebec Circles

Banquet of Builders' Exchange Enlists Interest for Master Plumbers—Three Hundred New Houses May be Erected—Pressing Need for New By-laws

QUEBEC—The banquet of the Quebec Builders' Exchange, or as it is better known in the historic capital, "L'Association des Constructeurs," held recently at the Chateau, was a definite success according to reports secured by Sanitary Engineer. In point of attendance it was better than any previous banquet of similar nature, the attendance being about 200. In point of interest the opinions seem to agree that this function was the most successful of the seven annual banquets held, and if interest is maintained, big things may be expected of the building trades in Quebec City, and the spirit will grow to Provincial Quebec.

The importance of proper sanitation and the great need of close attention to the framing of such laws, as well as other features, were ably dealt with by E. G Brousseau, president of the Association, and one of the leading master plumbers of Quebec city. It is noteworthy that Mr. Brousseau has foreseen the need of closely following up the matter of new housing, and as president of L'Association des Constructeurs, he has been very active in keeping these matters to the fore.

Sanitary Housing

The address of Mr. Brousseau, followed along similar lines to that delivered by him at a previous meeting of the Civic Progress Committee. Strong emphasis was made of the need of Quebec in the matter of building by-laws, and the speaker quoted many other places to show wherein his native province was sadly lacking in by-laws for governing of building activities generally.

"We need a good plumbing code in Quebec," said Mr. Brousseau to Sanitary Engineer. "And I am glad to say that a resolution was passed at this meeting to be forwarded to all associations of Quebec, including the Board of Trade, the Physicians' Association, the architects and others. The resolution is now before the City Council and I hope it will become law in the very near future."

Three Hundred New Houses

"We have started the housing scheme, and this was given a good send-off at the annual banquet held at the Chateau," continued Mr. Brousseau, "and we expect to succeed in starting the building of 300 new houses early in July, according to the plants of the Federal Government loan."

The above bears out what has already been outlined in Sanitary Engineer, relative to probable building activity in Quebec city. With the plans furthered, as explained by the president of the Builders' Exchange, there is little question but that many hundreds of thousands of dollars will be added to the program, for these 300 houses, in addition to many business blocks and other plants will increase the grand total appreciably. If the better legislation now being sought regarding sanitation can be secured, there is little question but that busy days are ahead of the Quebec master plumbers.

WELLAND APPOINTS SANITARY INSPECTOR

Welland, Ont.—In connection with recent deliberations concerning the appointment of a Sanitary Inspector, there has been considerable discussion as to what were the duties of a sanitary inspector and whether he should give his full time to the job or not. There were six applicants for the position, and of these Mr. H. D. Robins stipulated that he would apply on condition it was a part time job.

Alderman Patterson recollected that they had discharged the part-time man last year. He was getting $300 a year. Alderman Diffin said that the council had acted upon the recommendation of the Medical Health Officer, who said that a full time man was preferable. Alderman Patterson wanted to know if conditions had improved any as a result.

The applicants were:

George Rowl, George Lees asking $720 a year; D. Jones, asking the same salary as the previous inspector, H. D. Robins; F. C. Kottmeir, P. W. Sutton, asking $100 a month.

Mr. Robins, who was at the meeting differed with Alderman Patterson that one of the duties of the sanitary inspector was to go through the back yards in the business section to see that boxes, etc., were stored properly. That, he said, came under the work of the fire marshal, as it was a matter of fire protection and not of sanitation.

Some of the members favored the appointment of Mr. Jones, but Mr. Lees won out on the vote. He will receive a yearly salary of $720, will devote all his time start in at once.

J. E. WALSH

One of the Montreal delegates to the convention of the Canadian Society of D. S. & H. E. Mr. Walsh was prominent in the discussion of various matters affecting the Canadian plumbing trade at the convention and acted as spokesman for the Montreal members when matters affecting their trade were under discussion.

Will Organize Quebec Province

Association Will Advise on New Montreal Building By-laws—Big Increase in Membership.

"I beg to submit the following report on the conditions of the past year. Regarding outside cities, not including Montreal, I regret to say that my efforts in trying to organize the cities in a provincial association were unsuccessful. It is a great and important question. Since our last convention that took place in Montreal I have spoken to several master plumbers outside of Montreal city to organize and they have promised me that they will give me their support. I have written them letters and am still waiting for the answers. I leave this question to this convention to give some good ideas to this matter, as it will be of great benefit to this society.

Business has been good throughout the Province of Quebec in general; but in Montreal city we were affected by a general strike in the building construction industries last September and October and we had to face many difficulties in doing our work.

But at last, with the work of our Montreal association who have named a committee, of which Mr. Ballantyne was the chairman, to try to negotiate for the benefit of our association, and after several long months the committee have come to a settlement for a period of twelve months with the syndicate.

The city of Montreal has decided to make new by-laws for building construction and they have asked our association to name a committee to study it and make corrections, if any. After good, hard work they have accomplished their work and sent their report to the city of Montreal. So the same for the city of Westmount, before putting their by-laws into force, our association was invited to study them and make necessary corrections for good sanitary plumbing. So it seems to me that sanitary plumbing by-laws should be made by master plumbers' experience, not by everybody who possesses very little or no experience, because the master plumbers are working to give the public a good plumbing system and it means the public will be on the safe side.

During the past years our association has made big steps in increasing membership."

H. LAVIGUEUR.

Saskatchewan Has Live Organization

Report From Vice-President of Saskatchewan Indicates Membership Has Been Doubled—Now Have Paid Secretary—Standard Septic Tank to be Adopted

Regina, Sask., May 17. 1920

Garrett Frankland Esq.,
Toronto, Ont.

Dear Sir,—

In sending in report as Provincial Vice-President for Saskatchewan, I am glad to be able to report a good live organization in our province, which is growing all the time; we have very nearly doubled our members the past year and have now most of the best plumbing and heating firms doing business in the province members of our society. At our last annual convention held in Saskatoon on March 8 to 10 I brought up the question of us sending a delegate to Toronto in June, and although the feeling of the meeting was that we should and would like to, it was finally decided after considerable discussion, that, owing to the very heavy expenditure facing our provincial society this coming year we would have to go easy. We have now a part paid secretary, Mr. Jas. Adams, of Regina, who is doing good work for our association; he took this work on at considerable sacrifice to his own business simply to do his part in making our Provincial Association a success. He has compiled a cost and resale book, with charge sheets, which all our members are getting, and find a great help in the business.

We also are working along with our Provincial Government in getting a standard septic tank adopted for our province, and are now sending a representative of our association, along with the government engineer on a tour of inspection of tanks that are installed in the different parts of the Province, to arrive at the tank that is most suitable for our conditions, and then have it adopted as the standard tank.

I have asked our secretary, Mr. Adams, to mail you at once a full report of our convention at Saskatoon, and also to send you a check for our members' per capita tax; this he will do and you should have same in a few days.

In conclusion I wish to thank the hard working officers of the Dominion Society for their untiring efforts during the past year and the Saskatchewan provincial appreciate their services and are only too willing to co-operate in any movement for the betterment of our trade throughout the Dominion.

I would be glad to be remembered to all my good friends at the convention and wish you all luck.

Yours truly,
N. B. ROANTREE,
Prov. Vice-Pres.

Toronto Building in May Double That of Last Year

TORONTO.—Permits for buildings of a total value of $3,133,605 were issued by the City Architect's Department for the month just ended. This is an increase of more than 100 per cent. over May, 1919, when the total stood at $1,455,734. An even greater increase is shown for the five months, the totals for 1920 and 1919 being $10,276,358 and $4,983,050 respectively.

Electrical Men Want Luxury Tax Eased

A representative delegation of electrical dealers and manufacturers from Toronto visited Ottawa to wait upon the Government in the hope of securing some mitigation in connection with the luxury tax of twenty per cent. placed upon electric fixtures. It is claimed that the tax as it stands will increase the already high cost of building and rental.

The delegation from Toronto, which met delegations from other parts of Canada, included H. S. Banfield, W. H. Banfield & Sons, Ltd.; C. H. Willson, McDonald & Willson, Ltd.; J. F. Heffron, Macbeth-Evans Glass Company, Ltd.; J. A. Tanner, Standard Bronze Company, Ltd.; S. Turnbull, Tallman Brass & Metal Company, Ltd.; S. J. Brown, Nitro Electric Co., and A. N. Starkey, Toronto Art Glass Dome Company.

Openings in Canada for British Firms

At a general meeting of the Toronto Branch, Canadian Association of British Manufacturers and their representatives, Mr. F. W. Field, British Trade Commissioner in Ontario, spoke of the close co-operation between the Association and the Trade Commissioners in Canada. "There are about 1,200 United Kingdom firms represented in Ontario," said Mr. Field. "The opportunity for United Kingdom trade in this market is good in a number of lines, despite the competition of foreign companies. Given aggressive treatment by the British manufacturer, this market will undoubtedly yield a substantial volume of business, as it has done in the past."

CANADIAN SOIL PIPES IN FOREIGN MARKETS

Winnipeg, Man:—Further evidence of the way in which Canadian trade is being extended, is indicated by the exportation of Canadian soil pipe to the United States and Japan, the Anthes Foundry Co., Winnipeg branch, having shipped considerable quantities to these coutries.

Depend on Immigration for Apprentices

Unfortunate Circumstance is That Canadian Boys Are Not Becoming Interested in Plumbing Business—Recommend Appointment of Joint Committee to Pass on Qualifications of Boys—Recommend Every Master Plumber to Take On as Many Boy Apprentices as Possible

Report of George Clapperton, Chairman of the Apprenticeship Committee before the 23rd Annual Convention of the Canadian Society D. S. & H. E.

REPORT OF APPRENTICESHIP COMMITTEE

Toronto, June 8, 1920.

Mr. President and Members Canadian Society Domestic and Sanitary Engineers.

Gentlemen :

In presenting to you the Apprenticeship Report for 1919, we are pleased to say that the apprenticeship problem is receiving a great deal of attention all over the country at the present time, and not without need, as nearly every city in the Dominion is dependent on immigration of mechanics from other countries to supply the demand. We consider this very unfortunate, for the Canadian boy, properly trained, is more adaptable generally to our style of work, and now that we have the opportunity of giving the boy technical education, we think every master should interest himself, first, to secure boys of the proper calibre, that is, the boy should be of good moral character and have a common school education. From inquiry we find that a very small percentage of the masters throughout the country employs boys to learn the trade. As a sample, in the city of Toronto, out of a membership of one hundred and sixty or seventy, we find that only forty of our members employed boys, and those masters who do not employ boys are always ready to entice the boy away from the shops after two or three years' experience, and this we consider very bad practice, and not beneficial to the boy. To remedy the above troubles or defects in our present system, it has been proposed by the Toronto Apprenticeship Committee to recommend to their association the following:

That a joint committee composed of masters and journeymen be appointed and known as the Apprenticeship Committee. The idea would be that boys wishing to learn the trade, would apply to this committee and in turn, if the boy proved to be of good moral character and of common school education the committee would turn the boy over to the master who was first on the list of applicants for boys. The parents or guardians of the boy would be a party to an agreement that they would use their influence with the boy to abide by any rules which were laid down by the said committee such as attending school during each term of night school at least two nights during the week where he would be taught mechanical drawing, mathematics and physics. The Toronto Society had a class of seventy boys during the last year enrolled at the Technical School, and though the results were not what we expected, owing to the great amount of unrest among the boys, we believe it is a step in the right direction, and will bear much fruit once conditions have become normal.

The Apprenticeship Committee should have full control of the boy from the time he starts to learn the trade until he becomes a journeyman. He would not be allowed to leave one shop to go to another unless sanctioned by the committee. The committee would have the power at any time to call the boy up for examination and if not making the proper progress, they would investigate and find where the trouble lay. Every boy should have at least three months' probation before he is registered as an apprentice, to ascertain whether he feels inclined to go on and learn the business, and to allow the committee to ascertain if the boy has the proper qualifications to become a mechanic. Dr. Mercer, the Government representative for Technical Education, assures your committee that the Government will do all in its power to assist in giving the boys the opportunity to acquire technical education throughout the country, but at the same time advises us that we must have some system whereby the boy will be compelled to attend these classes. We believe that the boy who will not attend the classes is not interested enough in the trade to remain at same. We would strongly recommend that every master throughout the country would interest himself in the apprenticeship problem and take on as many boys as his business will allow, and to make sure that the boys get an opportunity to acquire technical education and also get a good business training. We believe that every city and town in our country, no matter how small, could make some provision for the boy to procure this knowledge. Our Toronto society, through the generosity of three of its members subscribing sufficient money for an endowment fund, is enabled with the interest on same, to grant four scholarships to the boys taking highest marks during the year. The four boys who have gained these scholarships this last year have taken very high marks in all of the subjects. We believe the scholarships to be a very good thing, as it is something for the boy to aspire for, not only for the value, but for the honor that goes with same.

In the smaller cities and towns of Canada, the boy could always receive the practical knowledge from his employer, and we think that the employers could arrange with the teachers employed in the schools, to give night classes at a nominal cost.

The great need of our trade to-day is education. We have tried for a great many years to educate the masters and the men, which has not been very successful. Now let us start at the foundation, which is the boy, and we feel confident that the results will be so marked and beneficial that our trade will be placed in its proper position in the building industry, which we claim should be at the top.

Yours respectfully,

GEORGE CLAPPERTON,
Chairman of the Committee.

ASBESTOS PRODUCTION IN CANADA

Mr. Frank Merricks, in his presidential address before the Institution of Mining and Metallurgy in London, England, referring to the mineral resources of the British Empire, said that at present Canada is the chief asbestos-producing country of the world, and all that is needed to enable her to retain her premier position is a continuance of efforts directed towards cheapening the cost of recovering the asbestos by improved methods of mechanical concentration and an adequate supply of labor. A few years since a Royal Commission reported that with adequate labor and supplies of material, 150,000 tons of asbestos might be produced annually from the Canadian deposits. This figure was nearly reached in 1918, the output for that year being 141,462 tons. The centres of production of Canadian asbestos are all in the Eastern townships of Quebec Province—at Black Lake, Thetford, Robertsonville, Danville, and East Broughton. Although Canada is the largest asbestos producer in the world, she does not even yet manufacture all the asbestos goods required for her own market. Local asbestos manufacturing industries are, however, growing, and will soon be equal to supplying the whole of the Dominion's requirements.

The Question Box

A WESTERN subscriber of SANITARY ENGINEER writes as follows:—

Dear Sirs:—As a reader and subscriber of your paper, I shall be very glad if you can give me any information on septic tanks. I have been reading your articles and have now a job to install one. The owner of the house says that the soil pipe at the tank end should only be 3 feet deep and the tank only 30 ft. away from the house. I maintain it should be 6 ft. deep at tank and the tank at least 50 ft. from the house. Am I correct or not? Frost line is about 6 ft. here in winter. Shall be glad if you will reply by return or in the next paper.

Answer—As far as we are aware a depth of six feet is unnecessary. The frost does not as a rule interfere with the action of the tank or the tile when it has a covering of a couple of feet. Climatic conditions in Winnipeg may of course affect the operations somewhat differently from what they do in Toronto.

With reference to the location of the tank itself, that depends entirely upon the quality of concrete used in its construction. In Ontario we have tanks laid against the foundation walls which give no difficulty, but it is usual to put them fifteen to twenty feet away from the building.

BRANTFORD THREATENED WITH WATER SHORTAGE

Brantford—The Water Commissioners have lost no time in preparing for the advent of a water shortage. Warning is given that water consumers must prevent wastage and that lawn watering must be confined to specified hours, with prosecutions threatened in case of infraction. The Grand River is at a low record for this time of the year.

WIARTON WATERWORKS SYSTEM UNDER DISCUSSION

Wiarton, Ont.—The waterworks system is the cause of much discussion at various sessions of the Town Council and apparently the majority of the town fathers believe that the waterworks should be again placed under the management of the council as in years past, before commissioners were appointed. Indeed, it will not be surprising if the ratepayers are requested to vote on the matter next January.

For some three or four years the council have had to foot a bill of approximately $4,000 annually, this being the deficit caused by the operation of the waterworks system at a loss. Materials, labor and other essentials doubled and even trebled in price, but the rate for water consumers remains the same as it was twenty years ago.

Members of the council believe that the consumer should pay this deficit instead of the tax-payer, and do not believe that the advance of 25 per cent. in water rates which has recently been made by the commissioners is sufficient. Recently they passed a resolution requesting the commissioners to make the advance one of 50 per cent. This last-mentioned advance will not be quite sufficient to meet the deficit, but the burden on the tax-payer will be lighter.

Several members of the council feel that body should not have to foot the deficit as has been done in the past without having some voice in the operation of the waterworks. Under existing conditions the management is solely in the hands of the commissioners.

PIPE LINE PROPOSED TO SUPPLY TWO CITIES

London, Ont.—According to a statement given out by General Manager E. V. Buchanan of the Utilities Commission, a pipe line to supply the cities of London and St. Thomas with water from Lake Erie would cost between $2,500,000 and $3,000,000. The proposal to have the cities join in the enterprise is being pushed, and St. Thomas engineers estimate that their cost of the lines would be about $500,000. Mr. Buchanan further estimates that the cost of operation of two pressure-raising plants would be about $500,000 per annum.

Com. Travellers Form a New Branch

Meeting Held in Swift Current, Sask. Recently—The Officers Elected

Swift Current, Sask.—A branch of the United Commercial Travellers was duly instituted by Supreme Grand Councillor Davidson, of Edmonton, at Swift Current, Sask., last week. He was assisted by Messrs. McKibbon and Rouse, of Regina, and Mr. Bloomfield, of Moose Jaw.

The officers of the new organization weer elected as follows: Senior councillor, H. J. Watson; junior councillor, Dave Bullock; past councillor, A. W. Forsythe; conductor, J. Fred Davie; page, K. S. Wiltse; sentinel, W. Cameron; secretary-treasurer, George Bailey; executive—Lee Huyck, Wm. Rae, W. J. Tripp, J. W. Freeman. After the inauguration ceremonies, a banquet was held.

Housing Congress Meets in London

London.—Housing problems, made acute all over the world, by the war, are being studied here by several hundred delegates to the first inter-allied housing and town-planning congress. Representatives of Canada and other British dominions, France, Spain, Sweden, Holland, Belgium, Finland, Denmark, the United States, Czecho-Slovakia, Italy, Japan, Poland, Chile, Rumania, Siam, Uruguay and Jugo-Slavia are in attendance.

Collection and co-ordination of available information as to the construction of dwellings and stimulation of official effort are among the objects of the meeting. One of the chief aims of the congress will be the formulation of a scheme of international application, by which every family may be provided with proper housing within a period of twenty years.

Canadian Clay Co., Ltd., has been incorporated, with head office in Toronto, to manufacture bricks, tiles, sewer pipe, drains, etc.

Retailer Must Give Sales Slip Showing Both Price and Tax

In Addition He Must Collect the Tax at the Time of Sale—Department Issues Ruling Prescribing Vendor's Duty.

Ottawa, June 2.—An important ruling dealing with the collection of luxury tax has been issued by the Department of Customs and Inland Revenue. The ruling provides as follows:

"Retail merchants and other vendors of articles subject to the luxury tax who sell to the purchaser for consumption or use are advised that upon the occasion of each sale of a taxable article the following requirements must be fulfilled, viz.:

(1) An invoice or sales slip showing the price at which the article is sold, exclusive of tax, and as a separate item the amount of luxury tax thereon, shall at the time of sale be delivered by the vendor to the purchaser.

(2) The vendor shall at the time of sale collect from the purchaser the amount of the luxury tax shown on the sales slip. No merchant is authorized to advertise or announce that he is paying the tax for the purchaser, as in point of fact he is required to collect the tax from the customer.

Heating and Ventilating

Drafting for the Sanitary Engineer

SECOND ARTICLE OF A SERIES BY ANDREW LOUCKS

BEFORE the student of this course undertakes to make any drawings he should become familiar with the definitions as herein presented.

These definitions will assist the student to a clear understanding of the advanced studies that are to be given in later articles of this series.

Some of the definitions may appear as being almost elementory in character, but the advanced student must remember that this course will be studied by some men who are not familiar with all of the signs and terms used by mechanical draftsmen. It is for this reason that we are now presenting some of the simple definitions of shapes, terms and symbols usually employed by these men.

The drawing shown herewith illustrates certain definitions of lines and shapes.

Fig. 1 indicates a *point.* A point has position, but no magnitude.

Fig. 2 indicates parallel *horizontal* lines.

Parallel lines are lines running in the same plane, and at exact distances apart. No matter how far parallel lines are carried they will never meet.

Fig. 3 indicates parallel *vertical* lines.

Fig. 4 indicates parallel *oblique* lines.

Fig. 5 indicates parallel *curved* lines.

Fig. 6 shows a *broken* line.

The line b—b in Fig. 7 is *perpendicular* to line a—a. In speaking of perpendicular lines it is generally assumed that a vertical line is meant; but the reader will note from the definition indicated by the drawing that a line forming a right angle with another line is, properly speaking, perpendicular to that line, even though neither line may be vertical.

Fig. 8 shows a number of *angles.* When two lines that are perpendicular to each other meet at a point the angle between the two lines is a *right* angle.

When the angle is sharper than a right angle, it is an *acute* angle.

When the angle is spread out more than a right angle, it is an *obtuse* angle.

On Fig. 8, O, O, O, O are obtuse angles; A, A, A, A, are acute angles, and R, R, R, R, are right angles.

A *plane* is a surface such as a sheet of paper, a table top, or a sheet of glass. A straight line connecting any two points on the same surface will be wholly on that plane.

Polygons

A *polygon* is part of a plane surrounded by straight lines.

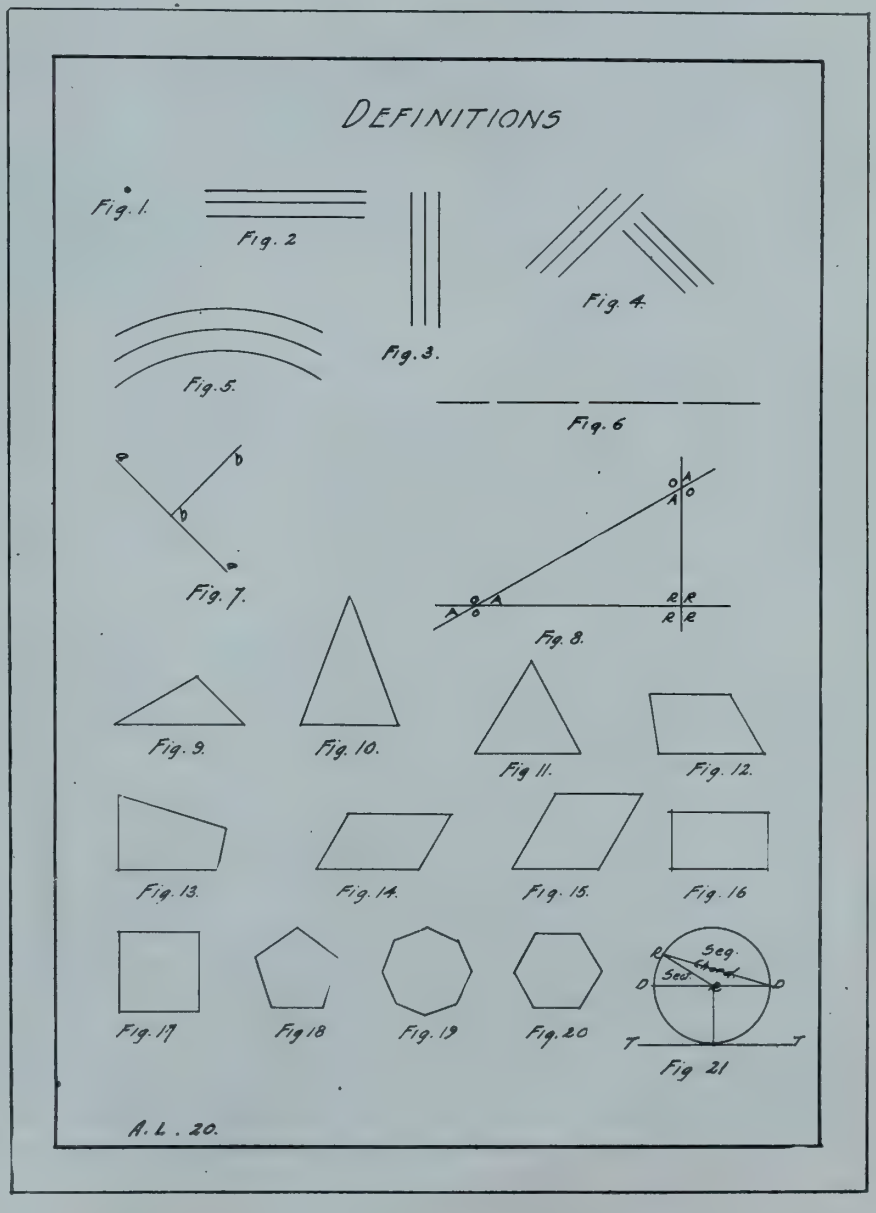
A *triangle* is a polygon with three sides.

Fig. 9 is a *scalene* triangle. A scalene triangle has none of its sides equal.

Fig. 10 is an *isosceles* triangle. An isosceles triangle has two of its sides equal.

Fig. 12 is an *equilateral* triangle, and has all of its sides equal.

A *right angled* triangle is a triangle which has a right angle. The side opposite the right angle is called the *hypotenuse.* The side on which the angle stands is its *base,* and the other side is its *altitude.* In Fig. 8, the line O—O is the hypotenuse of this right angled triangle. The horizontal line is the base, and the vertical line is the altitude.



A *quadrilateral* is a polygon of four sides.

The quadrilateral shown by Fig. 12 is a trapezoid. A trapezoid has two of its sides parallel. Fig. 13 has none of its sides parallel and is called a trapezium. Fig. 14 is a *parallelogram.* A parallelogram has two pair of parallel lines.

A parallelogram with sides not equal, and angles not right angles is called a *rhomboid.* Fig. 14 is a rhomboid. When the sides are all equal, as in Fig. 15, a *rhombus* is indicated. A parallelogram of right angles is called a *rectangle.* A rectangle of equal sides is a *square.* Fig. 16 is a rectangle. Fig. 17 is a square.

A *pentagon* has five sides, viz. Fig. 17.

An *octagon* (Fig. 19) has eight sides.

A *hexagon* has six sides, as shown by Fig. 20.

A *heptagon* has seven sides.

The *enneagon* has nine sides.

The *decagon* has ten sides.

The *dodecagon* has twelve sides.

Other Definitions

A circle is a part of a plane bounded by a curved line, all of the points of the line being exactly the same distance from a point within, called the *center.* Fig. 21 is a circle.

The *circumference* is the curved line that bounds the circle.

A *radius* is any straight line drawn from the center to the circumference. The line R—R in Fig. 21 is a radius.

A *diameter* is any straight line drawn through the center to the circumference. D—D in Fig. 21 is a diameter.

A *chord* is any straight line joining two points of the circumference.

The *arc* of a circle is any part of its circumference. That part of the circumference above "Seg." in Fig. 21 is a chord.

A *segment* is the portion of the circle bounded by the arc and its chord. "Teg." in the figure indicates a segment.

A *sector* is the space between an arc and two radii, as shown by "Tect." in Fig. 21. A line like T—T, which passing a curve, touches it without cutting it, is a *tangent.*

Volumes

A volume with the same shaped ends, and whose sides are parallelograms is known as a *prism.* A prism may be rectangular, triangular, etc., according as its ends are rectangles, triangles, etc.

A *cube* is a rectangular prism. All of its sides are squares.

A volume bounded by a curved surface and two equal circles is a *cylinder.* A piece of steam pipe is a cylinder.

The base of a *pyramid* is a polygon; its sides are triangles meeting at a point called the *vertex.* A pyramid may be triangular, quadrangular, etc., as its base is a triangle, quadrilateral, etc.

The base of a *cone* is a circle from which the other surfaces taper to a vertex.

Dictionary of Terms

Apex: The tip or summit.

Bisect: To divide into two equal parts.

Center: The point from which the radius is struck to describe a curve. The point equally distant from the ends of a line.

Describe: To draw. Where a note is given in these instructions: "To describe a circle from a center, the meaning is that a circle is to be drawn from a center."

Ellipse: An oblong figure bounded by a regular curve. The section of a cone when cut by a plane passing obliquely through both sides of the cone is an ellipse.

Helix: A straight line ascending around a cylinder. The threads on a steam pipe are helices.

Perspective Drawing: The representation of an object upon a *plane* surface in such a way that the appearance of the object in the drawing will be the same as the actual object viewed by the eye from a particular point.

Raking: Inclined to the horizontal.

Elevation: The external vertical plane of anything.

An elevation shows only the geometrical projection, and must not be considered as presenting to the eye the same appearance as the actual object which it represents.

When looking at an object, the eye takes in not only the horizontal and vertical dimensions of the object, but also that of depth. The depth can not be shown on the elevation drawing.

Plan: The horizontal plane of anything.

Return: The continuation of a line in an opposite direction.

Reveal: The vertical side of an opening, such as the buck jambs in a doorway or window opening.

Relief: A projection.

Salient: A projection.

Scribing: To draw points on an irregular line, or to describe an irregular line.

Section: A drawing showing the internal heights and parts of anything. A building shown in section on a drawing supposes the building to be cut through on a line or lines. The plans show the lines where the section is supposed to be cut.

Soffit: The lower face of anything, such as the underside of the head jamb of a door-way.

Span: The distance between supports.

Specifications: Written description of the work and materials in greater detail than can well be shown on a drawing

Splay: To make a line so that it forms an oblique angle with another line.

Sketch: In the making of working drawings, a sketch is considered to be a more or less rough outline of an object. In a sketch no attempt is made to show subordinate lines or details.

Symbols: Symbols are used to indicate certain words, things, etc. by a short method. In the December 1st number of the "Sanitary Engineer" a chart was given showing many of the symbols used by mechanical draftsmen. It is our purpose to use the signs given in that chart when making specimen drawings of the class of work our students will likely be called upon to make.

MANUFACTURERS—JOBBERS SUPPORT TRADE EXTENSION

Continued from page 17

city. He stated that the past conditions wherein a mechanic with a kit of tools working out from a cellar could cut prices lower than the man who maintained a showroom, would have to cease.

Dealing With the Speculative Builder

R. Belyea, Toronto, speaking for the younger operators thought that the new blood being introduced into the trade was more energetic for better business methods than the pioneers. He appreciated the fact that the plumbing trade came in for much ridicule because of its operations in years past, but the co-operation of the manufacturers was now needed to avoid the pitfalls of the past.

"The speculative builder is one with whom you can deal and by advertising you can educate the buyer of a home to look into the plumbing and see that he is getting a good job," stated Mr. Belyea.

H. Mahoney spoke of the change which had come over the trade during the past fifteen years, whereas they were now very sincere in their dealings with the manufacturers and wanted to be educated to sell a higher class of goods.

Education Has Benefitted Ontario Members

J. E. Walsh, Montreal, spoke of the good feeling which existed between the trade and the manufacturers in his city. He admitted that the campaign of education carried on recently by the Ontario members had advanced their ability.

E. G. Brousseau, Quebec, stated that he had started business with $150, and of that amount $100 went into show windows. He had had good success in his business and suggested that if education would do as much for his confreres he would support it.

Mr. Anthes of the Anthes Foundry Co., spoke of the good impression made by the younger men in the Society who had spoken. He added that the ideals as outlined were legitimate and would be supported. He pointed out that the disorganization caused by the war was now largely over and trade conditions were somewhat changed, and it was necessary to go about business in scientific lines. He made mention of the phenomenal growth of rural plumbing in the Canadian Northwest, and of the importance of bringing up to date facilities to the farm in order to keep the farmers and their children on the land.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

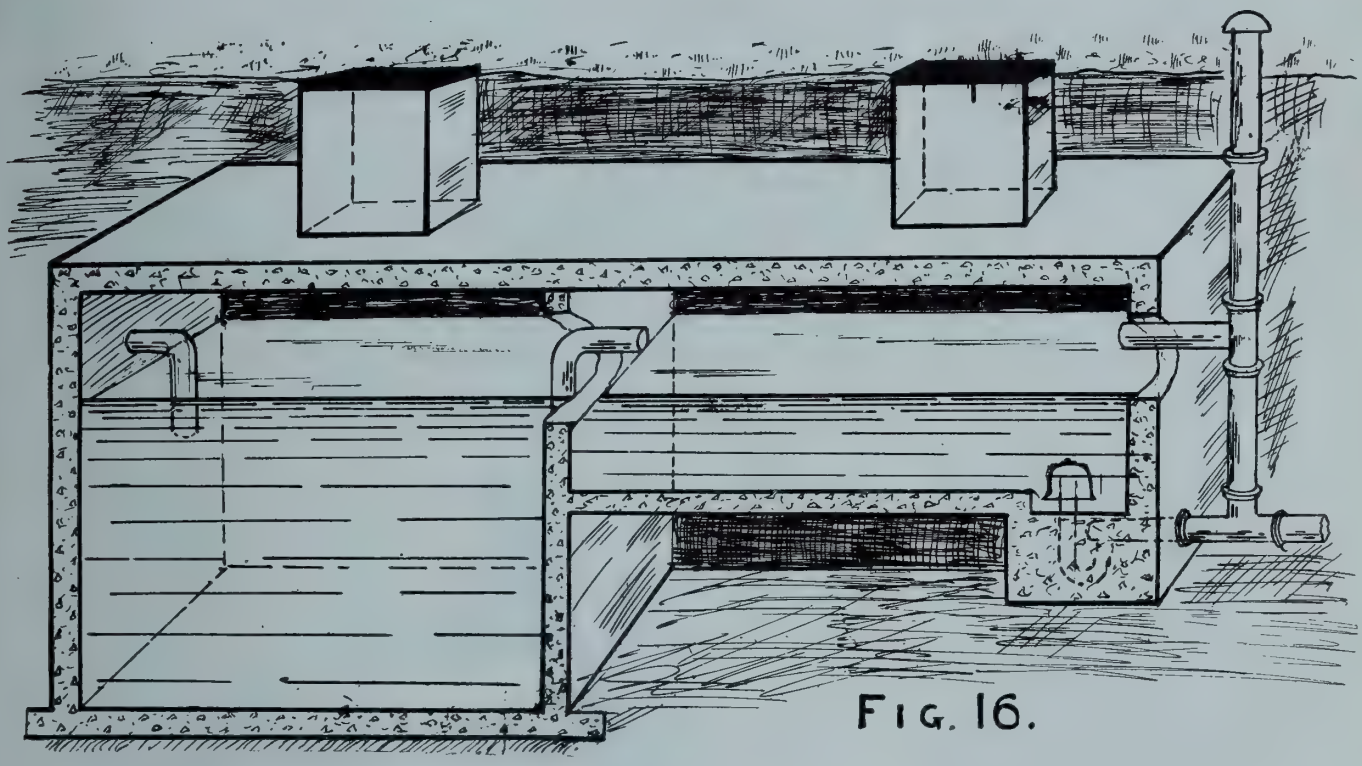


FIG. 16.

Article No. 10 of the Series—Illustration No. 16

(Continued from last issue)

FIG. 16 shows a perspective view of the interior of a two-chamber septic tank which plainly illustrates the working and actual construction necessary for a modern septic tank installation.

The submerged sewage inlet enters the first chamber which is constructed much deeper than usual, the water sealed connection between the two tanks is obtained by constructing a concrete baffle wall connected to the sides and roof of the tank and running the full width of same.

The sewage passes over the division wall and is carried up to the height required, by calculation, for the storage capacity of both tanks and acts as a weir running the full width of the tank as shown in the plan.

The overflow, automatic syphon and ventilator are constructed as previously described and inspection covers for easy access should be provided in the reinforced concrete roof.

Western Industrial Development Amazes Eastern C.M.A. Delegates

Members of C.M.A. Now on Western Tour for Convention in Vancouver—Manufacturing Establishments Increased from 429 to 4,082 in Seventeen Years

WINNIPEG.—Eastern industrial representatives and members of the Canadian Manufacturers' Association are now on a tour through the West and will hold their annual convention in Vancouver. A great many of these manufacturers have been amazed to learn of the phenomenal industrial growth of Western Canada since 1900. As an evidence of the industrial growth of the West it is noted that:

There are now 516 members of the Canadian Manufacturers' Association in the Prairie Provinces. The number of manufacturing establishments has increased from 429 in 1900 to 4,082 in 1917, and the number of employees has increased in the same time from 6,387 to 42,404.

The Government's definition of an industrial establishment is fairly broad. It includes, for example, tailor shops, blacksmith shops, millinery establishments, and many other small concerns. These are not actually factories in the popular acceptation of the term. The Canadian Manufacturers' Association does not admit to membership any concern which employs fewer than five persons in its mechanical department.

Among the foremost industries of Western Canada must be ranked the milling and packing house industries, which are, in a sense, the natural outcome of agricultural expansion. A recent estimate places the investment in the milling industry in Western Canada at $72,000,000, while last year the mills turned out approximately 45,000,000 barrels of flour and 35,000 tons of mill feed.

The number of plants using steel and iron as their raw material is surprisingly large, and the variety of products turned out quite extensive. There are foundries engaged in making bridges, agricultural implements and elevator machinery. There are factories manufacturing gasoline and kerosene engines, batteries, pumps, windmills; fencing, metal siding, corrugated pipe, feed and water troughs. In fact, some of these establishments rank second to none in the character of their equipment and the quality of their product.

As for building materials, these are supplied practically exclusively by Western industries, there being cement works, brick and tile plants and woodworking establishments in operation, as well as paint and varnish factories.

Latest Industries

New industries are constantly being launched in Western Canada and more are bound to follow as population increases.

In the meantime many Western plants already established are carrying out enlargements to meet the needs of the day. In this respect they are sharing to the full with the industries of the East and great demand for all manufactured lines. The industrial expansion of the Prairie Provinces forms another interesting chapter in the history of Western development and is destined to become a still greater factor in national progress as the years go by.

St. Catharines.—The City Council has endorsed a proposal of the Chamber of Commerce to erect 50 houses. The city will guarantee 80 per cent. of the bonds of a company to be formed for that purpose. The houses are to cost $3,000 to $4,000. The first payment by the intending householder will be $500, and the balance like rent.

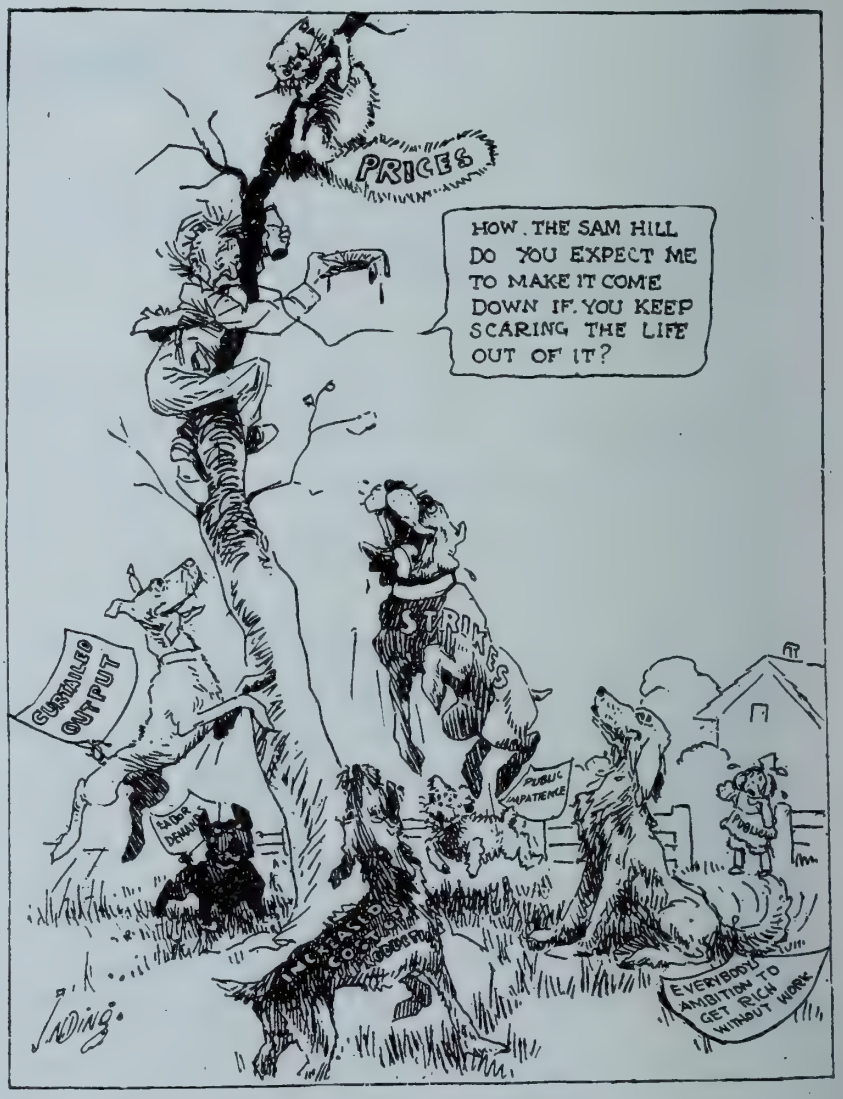
PROPER INSTALLATION OF PLUMBING

(Continued from page 20)

peak, because every journeyman in the United States to-day is employed and there are no more to be had. We are trying to get their organization to give us a few more apprentices and trying to get it taught in the schools. By educating the plumber and contractor to install a better class of material we can make more money for ourselves, and for the plumber and heating contractor.

"Now, gentlemen, we have had a great conflict, and when the U. S. and Canada was in the conflict, who was it that came to the rescue of the Government? It was the business men of these countries, and while we gave unselfishly, when it was over we turned back to our business and faced the question of reconstruction. We have the question of getting rid of the money-grabbing crase, both on the part of the manufacturer and the laborer before we can get anywhere. And how can you do this without co-operation? It has been demonstrated to me that this can only be done by trade extension and standardization.

"And I want to add that if we can render you any service we will be glad to do all we can for our brothers in Canada."


PRICES
HOW THE SAM HILL DO YOU EXPECT ME TO MAKE IT COME DOWN IF YOU KEEP SCARING THE LIFE OUT OF IT?
CURTAILED OUTPUT
LABOR DEMANDS
PUBLIC IMPATIENCE
PUBLIC
EVERYBODY AMBITION TO GET RICH WITHOUT WORK

"Keeping the Cost of Living High"

DEPARTMENT OF HEALTH REQUIRED

(Continued from page 21)

fit he can make, and not the degree of efficiency he can provide, because he is not building for his own personal occupation, but for sale. With the competitive system prevailing, everything is kept down to such a minimum of cost, that all standards of efficiency are neglected, and supposedly attractive outside architecture is given more consideration than the conservation of the health of the future occupants. Even in those cities that have effective sanitary legislation they find at all times a desire on the part of speculative builders to encroach upon requirements of the law, and in many ways they are successful in doing so. When they cannot evade the law by using inferior materials, they will generally hire incompetent mechanics who sub-let work at such prices that competent men know that some means are being taken to avoid the law. The present time, when thousands of homes are being built annually, which will be the permanent residences of the future citizens of this country, is the opportune time for legislation. Immigrants have as much desire as our own people to have brighter and healthier homes where they can have the use of all the best devices for the safeguarding of health and the recognition of proper sanitary standards; and they should be aided in that desire by such legislation as will guarantee them protection from the unjust exploitation being carried on by speculative builders.

With the advances that are taking place in sanitary, heating and ventilating equipment, the necessity for forming a codification of the laws dealing therewith is increasingly felt. While there may be some impediments in the way, owing to the multiplicity of legislative enactments, still with co-operation these may be overcome. The many interpretations put on our laws, due to lack of rigid forms of administrator, is surprising. In many towns we find the administration left in the hands of an unsympathetic department, or men being employed as inspectors who have no knowledge of the occupation, and who have been selected purely for personal or political reasons. Hence, we may expect to find that low standards of workmanship, which are a menace to public health, are very common.

Proposed Federal Law

Realizing that the cities and towns of the Dominion recognize the value and necessity of by-laws for the control of sanitation, ventilation, etc., and are making an endeavour to meet the situation by local regulations, it becomes imperative that the Federal Government should pass legislation that will serve as a minimum standard, leaving the cities free to supplement the Dominion law, by any special regulations that may seem to be necessary by reason of climatic conditions.

It is the duty of every domestic sanitary and heating engineer, so far as it relates to this question of health, to study, investigate and recommend to the Governments of Canada how this can be best accomplished, especially since it concerns the health of each member of a household.

In the past the Governments have been as extravagant and unsaving of human life as they have been in wasting the resources of the country.

We leave too much to Providence and forget that God helps those who help themselves, and we have yet to realize as domestic sanitary and heating engineers that we must individually know more and practise more of public health principles.

Yours truly,
JOHN WRIGHT,
Chairman of Sanitary and Legislature.

A POINT OF LAW

(Question).—A. M. Carscadden, Fort Saskatchewan, Alta., makes the following enquiry: "If a merchant contracted or ordered a car of coal from a local coal dealer and the team that was hauling the coal from the car to the store ran away and smashed a plate glass window, would the merchant who ordered the coal or the coal dealer be held responsible?

(Answer).—The owner of the horses would be liable unless the horses were loaned or hired, and even then he would be liable if the person who had charge of the horses were not negligent or careless. It would be necessary to prove negligence or carelessness on the part of the person to whom the horses were loaned or hired to free the owner from liability for damage caused by the horses.

PROVINCES CAN USE APPROPRIATION

(Continued from page 23)

This would serve greatly to reduce the cost of material, as manufacturers could then standardize for the whole of Canada.

Second—Heating By-Laws

Here is a field for future action. It has always been incomprehensible to me, that manufacturers who have invested many thousands of dollars in plant and equipment and patterns, should tolerate the present conditions with regard to heating installations. They are glad when a reliable steamfitting firm has their boilers and radiators to install, as they then know that their product will get a fair show. But their goods get into the hands of men of little knowledge of heating and mistakes in sizes of boilers, amount of radiation and bad pipe work are all too frequent and the public is not protected. It is not only from this end that the matter has to be looked at, but there is the vital fact that installations are made in such a faulty manner as to risk explosion and consequent danger to life and limb. It is in the gravity of this latter point that legislation should be sought.

It has always been a source of wonder to me that certain manufacturers of heating goods maintain an expensive engineering department and through this perform the functions which appertain to a properly qualified and experienced master steamfitter. Would it not be better to cut this out and co-operate with this association in an effort to standardize and set out clearly what constitutes a master steamfitter, endeavor to have legislation passed confirming and protecting the legitimate master steamfitter and those in his employ and then confine their sales exclusively to these qualified men and firms? The cost of heating goods could be very materially lowered by the manufacturers if this heavy overhead were done away with, and both makers and users know to-day that it is vital, that the cost of hot water and steam heating be lowered and that as soon as possible, or no expansion in this line of business can be looked for.

Third—Workmen's Compensation

This feature is first-class in Ontario and the offer to form an association in our trade to promote safety first and so lower the rate, should be actively taken hold of by Ontario society. The legislative committee of the Canadian association can well endeavor to have workmen's compensation laws in the various provinces approximately the same, and I would advise that it would be of service to collate all data from each province insofar as it relates to plumbing and heating, so that the province rating the lowest and the highest could be seen at a glance and endeavor made to bring the rate down to an equal and as low a point as possible over the whole Dominion.

Finally, as I see it, only by the enactment of wise laws, Dominion, Provincial and Municipal, and by the active co-operation of individual masters in local associations, and the active co-operation of these with the manufacturers and wholesalers will our trade be in a position to enjoy the benefits of the tremendous expansion which I see in store for this Canada of ours, in whose growth and prosperity we are so vitally and intimately concerned.

I thank you, Mr. Chairman and Gentlemen,

Yours sincerely,

OPPOSES BACK VENTING FOR THE SMALL HOUSES

London, Ont.—It is stated that the London Housing Commission intends to protest to the Provincial Government against the regulations for plumbing which call for back venting in small houses. It is alleged that this is unnecessary and a hardship on the poor. It was not demanded last year, and it means $500 additional cost on the homes. Ald. Cunningham is to accompany the Housing Commission delegates when the protest is made.

EDUCATION BY CO-OPERATION

(Continued from page 16)

Explain Co-operation

In regard to the recommendation favoring closer co-operation with manufacturers and wholesalers, T. J. Minnes explained the dealings of the Ontario society with the manufacturers, pointing out that it was the intention to follow out the plan of the Trade Extension Bureau in the United States. In this connection Mr. Minnes read a letter he had forwarded to the committee appointed by the manufacturers and jobbers, outlining his own ideas on co-operation to create a bigger demand for plumbing fixtures.

Dealing with the suggestion that vice-presidents of each province be appointed as directors of the Canadian Society, H. Mahoney presented a resolution amending the constitution to the effect that the Canadian Society will consist of a president, vice-president and secretary treasurer and the vice-presidents of provincial associations. Any province to be represented by proxy. He pointed out that such formation would render the parent body an executive one.

London Member Makes Objection

B. Noble, London, objected to cutting down the convention representatives to provincial vice-presidents. Mr. Mahoney replied that a dozen men representatives of all the provinces would be more powerful, and that the Canadian Society was not a convention body but a parent body.

J. Walsh, Montreal, moved the adoption of the resolution adding that it should be put into effect at the next convention, but before it was seconded C. Avery, Hamilton, stated that such action would stifle the national body while building up the provincial associations.

It was hereupon suggested by Mr. Walsh that the expenses of provincial vice-presidents be paid to the convention. As a result of these deliberations Mr. Mahoney gave notice of motion for future action on the matter.

To Increase Per Capita Tax

A recommendation covering an increase in the per capita tax for membership in the Society was made calling for an increase to $2 where a provincial association exists, $5 where a local exists and $10 where no other organization exists. The secretary stated that receipts now amounted to only about $300 from dues and that it was necessary for more money to be raised, particularly if the expenses of provincial vice-presidents were to be paid in coming to future conventions. J. E. Walsh, Montreal, objected to grading the fees, he being of the opinion that outside men where no organization existed did not get as much value as local members and were penalized heavier. The matter was left for action on the part of the incoming executive.

The delegates attended the ball game at Hanlan's Point in a body on Thursday afternoon as a fitting and enjoyable conclusion of the three-day session.

REMINISCENCES AT ANNUAL BANQUET

(Continued from page 18)

when I say it would not be possible to make any reduction in the price of our goods if we sold direct to you. The profit for the jobber is very small considering the risk he takes and the work he must handle. You know when you get contracts you must be covered. You go to your jobber who looks after this for you. Therefore you will see that a bond of harmony should exist between the members of this society and the jobber. And just one word about education—I am sure that if the educational program which has been practically promised you to-day is properly worked out there are wonderful things in store for the sanitary engineers of Canada. A toast to our industry, gentlemen."

Response to the toast to "Our Industry," was made by Mr. Avery, as follows:

"Mr. Chairman and Gentlemen:—Time will not permit me to say all the things I am thinking about this subject, so will only say a few words. During the past four or five years we have been studying the possibilities of our industry and are convinced that there is a wonderful opportunity for all if we will only grasp it—for the manufacturer, the jobber and the retailer. The operator is more one who sells service than one who merely installs fixtures and piping. I recently heard of a man who said: "I have been in this business for twenty-five years. I started with $15,000, and I have it yet." I do not agree with that way of looking at it, but it is a condition that surrounds too many in this business. We do not think high enough. The opportunity is in our own hands."

CANADA'S TRADE GROWS

Ottawa.—Canada's trade continues to increase, as shown in the figures for May prepared by the Dominion Bureau of Statistics. Imports for May, 1920, show an increase of more than two hundred million over the corresponding month of last year, and of more than one hundred and fifty million over May, 1918. Exports show an increase of more than twelve millions for 1920 over May, 1919, but there is a decrease of $216,000,000 as compared with 1918.

Imports from the United Kingdom totalled approximately $141,000,000, and from the U. S. approximately $822,000,000. Exports to the United Kingdom were $472,000,000, and to the U. S. $466,000,000.

FAVORS PLENUM SYSTEM OF HEATING AND VENTILATING

After discussing the Plenum system of heating and ventilation in the schools for over an hour, the Toronto Board of Education, by a vote of eight to five, decided to concur in the report favoring the system received from the Property Committee. Mr. Joseph Bell claimed that Toronto had the best heated and ventilated schools in North America, and stated that it had formerly been the system to feed tuberculosis to the school children by ten or fifteen horse-power fans.

OPENING OF BRITISH INDUSTRIAL EXHIBITION

The British Industrial Art Exhibition will open on 16th September, at Knightsbridge, London. This exhibition comprises textiles, wall papers, furniture, pottery, glass and metal work, also building and other crafts. A number of buyers are expected at the Exhibition from Canada, the other overseas Dominions and foreign countries.

Canadian buyers who propose to visit the Exhibition should secure further information from the nearest British Trade Commissioner in Canada. Their names and addresses are:

(a) Captain E. J. Edwards, 248 St. James St., Montreal.

(b) F. W. Field, 260 Confederation Life Bldg., Toronto.

(c) L. B. Beale, 610 Electric Railway Chambers, Winnipeg.

Moncton, N. B.—Building operations here, which have been virtually at a standstill for the last week or ten days, owing to the strike of the builders' trades, has again been resumed, a satisfactory working agreement having been reached.

WHY THE NEW TAXATION IS NEEDED

Dealing with the conditions which have led up to the imposition of the new taxes, Hon. N. W. Rowell stated recently in the House of Commons that the total estimates, with the supplementaries, were $549,000,000. With maturing obligations the amount which must be provided for was $623,000,000. Certain outlays during the year, provided for in the estimates, were in the nature of investments, he explained. Some $190,000,000 was expected to come in this year, so that it was a matter of conversion from one asset to another. There was an estimated income of $381,000,000, less a reduction of $31,000,000 through the cutting off of the 7½ per cent. war surtax. There would be an estimated $451,000,000 to meet an expenditure of $443,000,000. The public debt of Canada was less than that of any of the warring nations, with the exception of the United States. Canada's foreign trade had grown enormously. From an adverse balance of $825,000,000 in the five years ending March 31, 1915, there had been brought about a favorable balance of trade of $1,803,000,000 in the succeeding five years.

Market Conditions and Tendencies

Statements Regarding Supplies and Trend of Prices

THE MARKETS AT A GLANCE

IT is interesting to note that few price changes have been made in sanitary or plumbing supplies, although the tendency is still upwards. Soil pipe prices have been revised upwards and new and higher prices are now in effect. Closet bowls are scarce and present quotations are very firm. Wrought pipe continues hard to procure and prices are very firm. Some lines of enamelware are also scarce. Lead, zinc, tin and spelter all have weaker tendencies and lower prices may again be made. Waste materials are also weaker.

Jobbers state they have great difficulty in securing sufficient supplies, which is proving a great drawback to all concerned. This is said to be due, however, to the tie-up of freight on the United States railroads, which has been the means of holding up many orders and it is stated that the congestion has as yet not been overcome and some have had cars of material tied up in transit for weeks past and are unable to receive delivery.

The new legislation regarding the Turnover Tax and the Luxury Tax is still one of the chief topics of discussion amongst business men and some are protesting against being required to assume the 1 per cent. Turnover Tax, on the grounds that they stand to lose considerable on the yearly turnover, through the loss of fractional amounts on small articles.

Collections are coming forward freely, notwithstanding the position the financial houses have taken regarding the tightening up of loans.

TORONTO, June 14.—Soil pipe is the feature of the market this week having been advanced in price. Few other price changes have been made, although quotations on some lines are very firm and the tendency in most cases is for higher prices.

Lead, tin, zinc and spelter have been showing sagging tendencies, and lower prices would not be unexpected. Scrap and waste materials are also weaker.

The tie-up of freight transportation is still the cause for considerable loss of business as well as inconvenience to many in the trade depending on this source of supply.

The demand for nearly all lines as well as the opening up of considerable work is keeping those in the trade very busy. The shortage of materials, however, is causing much inconvenience and prospects for immediate relief are not very promising.

Collections are coming in very satisfactorily regardless of the tightening up of loans by financial houses, and finances of the consumer do not seem to have been seriously affected by the tightening process.

Enamelled Ware Prices Firm, Tendency Upwards

ENAMELLED WARE.—The present prices on nearly all lines of enamelled ware are very firm and the price tendency is still upwards. The demand is a heavy one and supplies are moving in fair volume. Owing to the shortage of materials, labor and other factors, present production is said to be below the standard, and while there is no famine for enamelled ware, some lines are hard to procure, especially for immediate delivery. The present high price of coal, coke, labor, and materials, etc., shows little sign of decreasing, and in some cases the situation is the reverse, and as a result present quotations are very firm. The recent embargo on the United States railroads has also been a great drawback for manufacturers depending on this source of supply for their raw materials. The following are the present quotations:

Bath tubs, roll rim, 4. 4½, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4345			11 05
18x24" Apron F154 or P3845 or P3847.			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9.05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Higher Prices Issued on Soil Pipe and Fittings

SOIL PIPE.—Jobbers have announced their new resale prices for soil pipe and the new quotations show an advance over former prices. Stocks of soil pipe throughout the East are said to be very low and replenishments hard to procure, at least for immediate delivery. The reverse of this condition, however, is said to apply to the situation in Western Canada, and some have it that throughout the West stocks generally are fairly heavy and are moving freely. The demand continues to be a heavy one and in some cases manufacturers are working on some of last season's contracts. The new prices are firm and are quoted as follows:

SOIL PIPE (medium and extra heavy)—
2-3-5 and 6-inch, add 10% to list.
FITTINGS—
4-inch, net list.
2 to 6 inch fittings, 20% discount.
8 inch pipe and fittings, add 20% to the list.

Waste Materials Have Light Demand; Weak

WASTE MATERIAL. — A sagging, downward price tendency continues for nearly all waste materials. Although no lower quotations have been made, present indications point to a decline. The shortage of coal and coke is said to be one of the chief reasons for the falling off of the demand, especially does this apply to iron and steel. It is stated that many industries have been slowed down on account of not being able to secure sufficient fuel. It may be that when transportation difficulties are straightened out on the United States railroads that supplies will again move more freely to and from the mills, and incidentally be the means of increasing the present light demand for these materials. The following present quotations:

DEALERS' BUYING PRICES

Pipe scrap	....	11 00
No. 2 busheling	....	13 00
Stove plate, per ton	....	....
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 08
Scrap zinc	....	0 06½
Heavy copper	....	0 17
No. 1 machinery cast	....	....
Wrought iron, No. 1, per gr. ton	....	15 00
Heavy melting steel	....	15 00
Heavy lead pipe	....	0 06
Old rubbers, boots and shoes	....	0 06
Overshoes. lumbermen's rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 04
Heavy lead pipe	....	0 06

Range Boiler Shortage Still Prevails

RANGE BOILERS.—Supplies of range boilers are still very light, and manufacturers state they are having difficulty in keeping up with their orders. One

of the chief drawbacks they state is the shortage of boiler plate, iron, and steel, etc. This difficulty of securing sufficient quantities of coal and coke and raw materials continues to hamper the manufacturer and may be one of the chief reasons for the present shortage of range boilers. The quotations are very firm although no further change in price has been made recently. Owing to the uncertainty of present market conditions few are predicting what the future will reveal and whether higher prices will again be made on this commodity remains to be seen. However, the firm prices on raw materials, etc., does not augur well for an early decline and the tendency is still upwards. The following are the present quotations:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Revised Prices Make Cotton Waste Higher

COTTON WASTE. — Some lines of cotton waste have come up for revision of price and new and higher quotations have been made. The present quotations are firm although the situation is somewhat unsettled. This, however, may be attributed to the season of the year when all are watching the developments of the new cotton crop. There has been some rumor that the weather conditions were unfavorable to the growing cotton; however, few, if any, are able to forecast the future situation. The demand for cotton waste is seasonably heavy and jobbers are very well satisfied with the volume moving. The following quotations are at present current.

WASTE

Cream, Polishing	0 28
WHITE	
XXX	0 23
XX	0 21½
X	0 20
XC	0 18½
Japanese	0 17
XXX	0 24
XX, grad.	0 22½
XLCR	0 21
X Empire	0 19½
X Press	0 17½
X Special	0 15½
COLORED	
No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 19
Lion	0 17
Standard	0 15
Popular	0 13
Keen	0 11

Above lines subject to trade discount for quantity.

Firm Prices Hold for Compression Work

COMPRESSION WORK.—A very favorable demand has been made for all classes of compression work. Valves, steam gauges and other brass fittings are also in good demand, and manufacturers state they are several weeks behind with their deliveries on some lines. Present quotations are firm and there seems little to indicate at the present time that lower prices will soon be made. The reverse of this situation seems more apparent and the tendency for future prices is still upwards. The present quotations on some of the better known lines are as follows:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Scarcity of Wrought Pipe Firms Price

WROUGHT PIPE.—Little improvement has been made in the wrought pipe situation and the shortage which has been prevalent for some sizes still prevails, it is stated. This, traced back to the source, is said to be chiefly caused by the skelp mills being unable to supply sufficient skelp, and in some cases these mills were closed for a period on account of the shortage of raw material, coal, labor or some similar reason, it is stated. The recent freight transportation tie-up on the United States railroads is also said to have been a great detriment to manufacturers and all concerned, having tied up the free movement of fuel and raw materials to and from the mills, as well as the movement of material to the pipe manufacturers. The present quotations on wrought pipe are very firm, and, owing to the abovementioned conditions the tendency is upwards. The following quotations are at present current.

PIPE—WROUGHT

Price List No. 44—April 8, 1920.

STANDARD BUTTWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
¼ in.	$6 50	$ 8 50	....	....
⅜ in.	5 13	7 26	$ 5 43	$ 7 56
½ in.	5 13	7 26	5 43	7 56
¾ in.	6 84	8 42	7 27	8 84
1 in.	8 45	10 58	9 03	11 16
1¼ in.	12 50	15 64	13 35	16 49
1½ in.	16 91	21 16	18 06	22 31
2 in.	20 21	25 30	21 59	26 68
2½ in.	27 20	34 04	29 05	35 89
3 in.	43 00	53 82	....	....
3½ in.	56 23	70 38	....	....
4 in.	71 30	88 32	....	....

STANDARD LAPWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
2 in.	$30 90	$37 74	$34 60	$41 44
2½ in.	45 34	56 16	51 19	62 01
3 in.	59 29	73 44	66 94	81 09
3½ in.	73 14	90 16	82 34	99 36
4 in.	86 66	106 82	97 56	117 72
4½ in.	0 98	1 23	1 24	1 49
5 in.	1 15	1 44	1 44	1 73
6 in.	1 49	1 86	1 87	2 25
7 in.	1 94	2 43	2 42	2 90
8-L in.	2 04	2 55	2 54	3 05
8 in.	2 35	2 94	2 92	3 51
9 in.	2 81	3 52	3 50	4 21
10-L in.	2 61	3 26	3 25	3 90
10 in.	3 36	4 20	4 18	5 03

Terms—2% cash discount if paid within 30 days. Approved credit.

Solder Prices Steady; Basic Metals Weaker

LEAD AND ZINC PRODUCTS.—The present quotations on lead and waste pipe remain unchanged although the tendency of the basic metals is for lower prices. The present demand for all kinds of waste pipe and lead is very satisfactory, and jobbers express themselves as well satisfied with the business being handled.

SOLDER also has a weaker tendency although the price is fairly steady. The demand for solder is also very good and has been moving out very freely despite the high prices current. The following are the quotations on some lines of lead and zinc products:

Lead pipe, list, per lb.	0 17
Lead waste pipe, list, per lb.	0 18
Do., over 8 in., list, per lb.	0 19
Lead traps and bends	add 30%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 13
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 43
Solder, strictly, lb.	0 35
Solder, commercial, lb.	0 33
Solder, guaranteed, lb.	0 39
Solder, wiping, lb.	0 33
Zinc sheets, per lb.	0 19

Boiler Tubes Have Good Demand; Price Firm

BOILER TUBES.—Although the present season is a little off, those in the trade express themselves as very well satisfied with the present business that is being handled for boiler tubes. Jobbers state that despite the great shortage of skelp and the present difficulty of securing tubes, that they are able to take care of any business coming forward. The present quotations are as follows:

	Per 100 feet	
BOILER TUBES—	Seamless	Lapweld
1 inch	$28 00	.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 00	30 00
2 inch	37 00	32 00
2¼ inch	37 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Few Shipments of Sheets and Plates Coming In

SHEETS AND PLATES.—The scarcity of sheets and plates shows little sign of any immediate relief, and many in the trade are disappointed over the present unsatisfactory delivery as it is believed that in some cases where iron or steel sheets are not available some other material is substituted, and in other cases, where these sheets were necessary the project was abandoned, and thus the possibility of filling the order on arrival of stock is lost. Present indications do not point to any immediate relief, and the situation as expressed by jobbers is as tight as ever. These conditions are attributed to the recent tie-up on the United States railroads, although the previous strikes at the mills are not to be overlooked. It is believed that jobbers were beginning to accumulate stocks of sheets before the freight embargo was put on, and some state they were almost in a position to supply all comers when the latest situation de-

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We offer N.P. Adjustable Basin Traps, S. and P., Plain and Vented, in 1¼" size, for prompt shipment.

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Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

H. Mueller Mfg. Co., Ltd.

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MANUFACTURERS OF HIGH GRADE MUELLER WATER PLUMBING AND GAS BRASS GOODS

veloped. The following prices are quoted here merely as a guide, as it is believed that very few could supply a full list of sizes. Owing to the present scarcity, it is necessary, in many cases, to pay premiums over these quotations as jobbers often find it necessary to go into the local market it order to secure the urgently-needed stock to fill their orders.

BLACK SHEETS

14 gauge	$8 95
16 gauge	9 00
18-20 gauge	9 45
22-24 gauge	9 50
26 gauge	9 55
28 gauge	9 65
3-16 inch plate	9 75
¼-inch boiler plate	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$12 00	$11 50	$12 00	$12 25
U.S. 28	11 45	11 70	11 45	11 85
U.S. 26	11 15	11 40	11 15	11 55
22 and 24	11 00	11 25	11 00	11 40
18 and 20	10 70	10 95	10 70	11 00
16	10 70	10 95	10 70	11 10
12 and 14	10 55	10 20	10 55	10 95

An etra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The etra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Corrugated Sheets Scarce; Price Firm, Unchanged

CORRUGATED SHEETS.—The scarcity and difficulty of procuring flat sheets continues to affect the market for corrugated sheets and manufacturers say they are considerably behind with their orders. The demand continues to be a heavy one and many undertakings are being held up on account of the inability of the manufacturer to supply the jobbers and contractors, etc. with materials to carry on the work. The recent tie-up of the United States railroads has been a great detriment to all concerned and many say they have had goods tied up in transit for several weeks. This situation, in conjunction with the great shortage of iron and steel make it very difficult for the manufacturers to keep up production and supply the trade with sufficient stocks of corrugated sheets. The above situation has the effect of making quotations very firm, and while no price changes have been made, the tendency is upward. The following are the present quotations:

CORRUGATED SHEETS—	Per 100 sq. feet Galv'd
No. 28-gauge	$10 50
No. 26-gauge	11 25
No. 24-gauge	16 75
No. 22-gauge	19 75
No. 20-gauge	23 50
No. 18-gauge	30 00

On shipments of 300 lbs. and over, freight is allowed south and east of and including North Bay; also several western counties in Quebec Province. Places north and west of North Bay, the freight is equalized on North Bay. For Quebec and Maritime Provinces, freight is equalized on Montreal.

Discount 7½%.

Iron and Steel Bars Firm; Price Unchanged

IRON AND STEEL BARS.—The present demand for iron and steel bars is a heavy one, and a good volume is moving. No change has recently been made in price, and the present firm quotations show little indication for lower prices. Jobbers state that while they are seldom able to get immediate delivery from the mills that most generally they are able to secure sufficient stock to fill their orders and are not suffering from any scarcity. This, they state, is mainly due to having booked orders far in advance of their present requirements, and, as a result some warehouses are very well stocked. The scarcity of coal and coke continues to be a big factor in holding up production, and the fact that some mills have had labor trouble may also have been a detriment to production. The present quotations are firm and are as follows:

Common bar steel, 3-16 and light	6 00
Common bar steel, ¼ in. and heavier	5 50
Common bar iron, 3-16 in. and heavier	6 00
Common bar iron, ¼ in. and heavier	5 50
Angle base	5 75
Horseshoe iron	6 00
Tire steel	5 95
Band steel	5 75
Spring steel	12 75
Mining drill steel	31 25
Sheet cast steel	....
Mild steel	5 75
Norway iron	16 25
Toe caulk iron	6 70
Sleigh shoe steel	5 75
Hoop steel	6 75

Weaker Price Tendency on All Ingot Metals

INGOT METALS.—No change of price is shown for ingot metals although the prices have fluctuated considerably, advancing one day and declining the next. The price tendency, however, is downward, and a light buying movement is current.

LEAD.—Little surplus lead is available although the tendency is downward The price remains unchanged and is quoted at 10½ cents per pound.

TIN.—A downward tendency is noted for tin, and the primary markets show a decline in price although the exchange situation offsets this on the local market, and present quotations still hold at 60 cents per pound.

COPPER.—Quotations remains unchanged, the price remaining at 24 cents per pound.

SPELTER.—The price tendency is still for weaker quotations although no change has been made in the present price the quotation is still holding at 10½ cents per pound.

ANTIMONY.—A weaker tendency is also noted for antimony although no change has been made, 15 cents per pound still being the quotation.

ALUMINUM.—Little active demand is noted for aluminum the price remains unchanged, and is quoted at 37 cents per pound.

Closet Bowl Prices Firm; Supplies Very Light

CLOSET BOWLS.—The present quotations on closet bowls are very firm and the price tendency is upwards. Jobbers state that they are having considerable difficulty in securing sufficient supplies, part of this they attribute to transportation difficulties, but biggest factor seems to be that the demand is greater than the supply.

Pipe Fittings Have Good Demand; Price Firm

PIPE FITTINGS.—Present quotations on fittings are very firm although no recent emhange in price has been made. The demand is very good and those in the trade express themselves as well satisfied with the business offered. The following are the present quotations:

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Eave Troughing Prices Hold Firm; Stocks Light

EAVE TROUGH.—Stocks are also said to be dwindling on account of the few replacements owing to the shortage of raw material. The quotation of an additional 15 per cent. to the list is current.

Conductor Pipe Stocks Getting Low

CONDUCTOR PIPE.—Stocks of conductor pipe are light, a condition which is attributed to the scarcity of sheets, it is stated. The present demand is a heavy one, and while those in the trade state they are losing no business on account of not being able to supply the demand, many are concerned for the near fmuture if deliveries do not come to hand more promptly. The following are the present quotations:

PIPE (Conductor)

	Plain
2 in., in 10-ft. lengths, list	8 00
3 in., in 10 ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

Add 15% to above list.

F.o.b. Toronto, Oshawa and Ottawa.

Steel Sinks Painted and Galvanized Advance 10%

STEEL SINKS.—An advance of approximately 10 per cent has been made in the price of steel sinks, both galvanized and painted. The new price is now quoted at list, plus 35 per cent. in place of the former addition of 25 per cent.

CONDENSED ADEVRTISEMENT

FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

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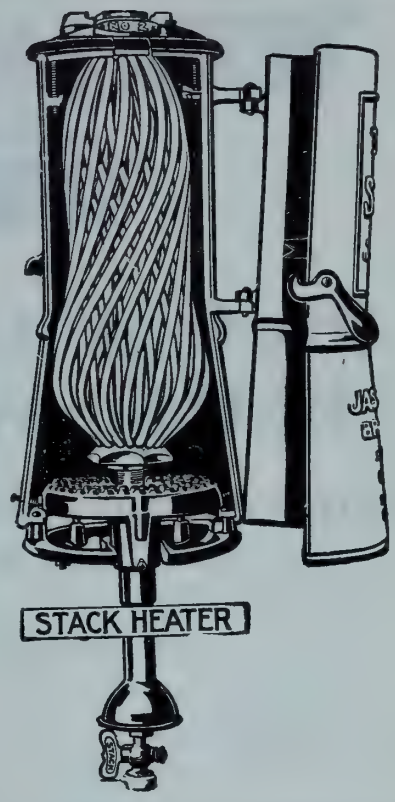
Will Heat Water Faster With Less Gas

STACK HEATER

The Stack Hot Water Heater will heat water in one minute, and with less gas. These are the strong points which make easy selling for the Stack Heater.

When your customers see how the water passes into the numerous small pipes exposed to the hot gas flame, they understand. It requires no technical knowledge to see that the water will heat faster in the numerous small pipes than in one large coil.



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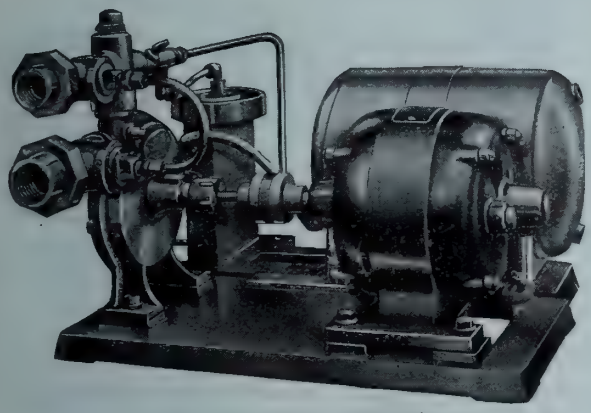

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Get even one Westco System installed in your territory, and it will sell many others. It is a small, compact system, yet absolutely efficient in every detail.

Its chief selling features are:—

(a) It has no supply tank.
(b) Simplicity of construction; no complications possible.
(c) Pump has only one moving part—the impeller. Nothing to wear out, except one bearing, which will last for years.
(d) Cheap to install, maintain and operate.
(e) Entirely automatic.
(f) Has no tank, no valves, no gears, no belts, no springs, no oil or grease cups, and it is self lubricating.
(g) Uses less power than Electric iron while supplying water for four faucets.
(h) Pumps 300 to 500 gallons per hour.
(i) Size 16½" long, 14½" wide and 11" high, weighs less than 100 pounds.
(j) Opening of any faucet starts pump; closing of faucet stops it at once.

If your territory is still open, write us at once for full particulars and details of this splendid selling water system.

Westco Pumps Limited
707 Yonge St. Toronto, Ont.

WILLIAMS' SUPERIOR DROP-FORGED WRENCHES

Better tools make better workmen—

And you can't buy a better wrench than a Williams'

J. H. WILLIAMS & CO.

"The Wrench People"

77 So. Clinton St. CHICAGO., ILL.
77 Vulcan St. BUFFALO., N.Y.
77 Richards St. BROOKLYN, N.Y.

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Tackle that next boiler-repairing job with a pipe wrench and a can of Boiler Neverleak. In one hour's time, often less, all leaks will be stopped and you can collect your regular charge of $40, $50, $75 or whatever it may be.

Just think! Take a badly leaking boiler, pour a can of Boiler Neverleak into the warm boiler water, bring the water to the boiling point and allow the boiler to stand thus for about an hour, after which pressure may be resumed as THE REPAIR HAS BEEN EFFECTED.

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352 Ellicott Street

Buffalo, N. Y., U. S. A. **Bridgeburg, Ont., Can.**

"HAUSE" PIPE JOINT CEMENT

For steam, water, air, oil, gas, gaskets, etc. The cement that cements. Sets like gum. Allows no leaks.

The Great Value of "HAUSE PIPE JOINT CEMENT" lies in its peculiar chemical properties which permit of its hardening and expanding after the joints are made up. In making up joints it has the same effect as a lubricant on the best graphite, and while the joints may be made and broken readily, a perfectly tight joint is maintained at all times. Comes in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans, 100-lb. barrels. Manufactured in ready mixed and powder form. Ask your jobber for prices, or write us direct.

Made in Omaha, Neb., U.S.A.

Manufactured in Ready Mixed and Powder Form.

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LONDON and TORONTO

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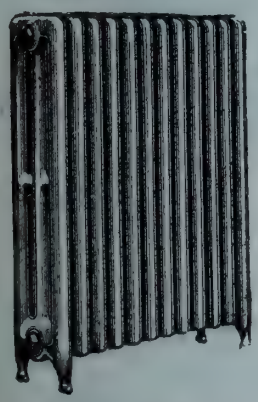

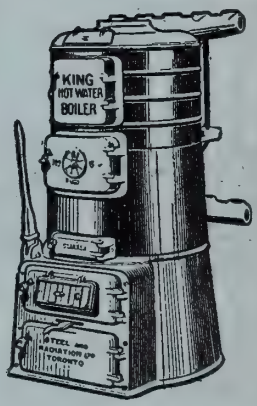

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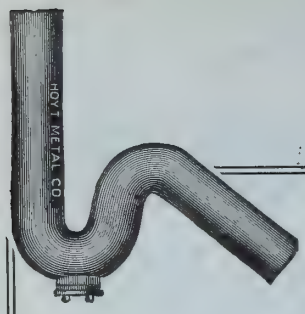

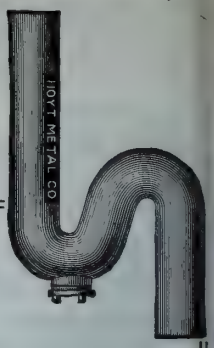

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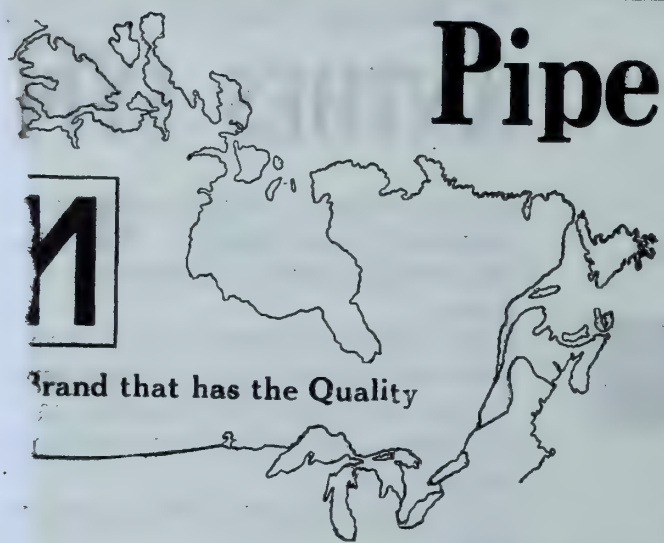

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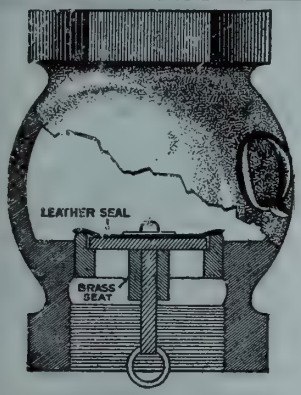

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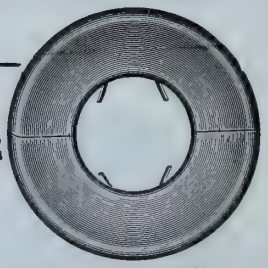

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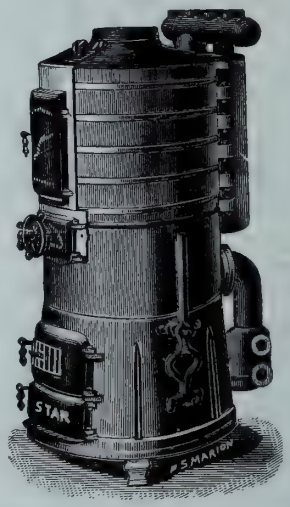
Thousands of Star Boilers in Use requiring repair Parts



It will be a long time before folks forget the coal troubles of the last few seasons.

The principal feature of the Star Boiler is that no other round hot water boiler has any coal-saving improvement not embodied in the "Star."

Then, too, while boiler installation and repair time is here, why not stock up with Star parts, for which O. Belanger has taken over the rights and is now making?

Many thousands of Star Boilers are in use requiring these repair parts hitherto unobtainable.

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We guarantee prompt deliveries.

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Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Iron Co. Limited

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Where Will You Be When The Band Wagon Starts?

FRANK B. LASETTE, President of the National Association of Master Plumbers of the United States, said in a recent article: "Personally, I am entirely satisfied that there is a great volume of business ahead for the plumbing and heating contractors, and that when it once starts in real earnest, the problem will be how best to take care of it."

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Let "X" Boiler Liquid do the work for you. It does a quick, permanent job — and your profits are larger.

"X" Liquid repairs leaks and cracks in boiler and hot water systems. And it also cleans out the system — makes it more efficient. All Rust and Scale is eliminated and as long as "X" is kept in the water no new Rust or Scale can form.

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The Sad Tale Of A Flue Brush As Told

By Booster Binx

If it had happened in Hoboken or Kokomo, wouldn't have thought strange of it.

But, by heck, it happened just a few miles from little, old New York.

Happened while I was spending Sunday with Carl Brown, who you remember, always gives such corking good talks at Conventions, on heating efficiency.

Well sir, I have heard all kinds of growls, from a lion's, down to a brindle pup's first attempt; but frankly, never heard a man growl so much about the coal he was burning as that man Brown did.

Finally, I grew doggone tired of it all, and in self defense, said, "Let's go down the cellar and look your blooming old Burnham over. What you ever bought a Burnham for anyway, is beyond me.

Suppose I did crack it up to the skies, you ought to know better than to believe a friend."

By that time, we were down in the cellar, and the first thing that caught my eye was the flue brush, hanging up and grinning at me.

Yes sir, grinning!

I'll swear by all that's good and holy, that flue brush had a grin on like a cat after lapping a saucer of cream.

When I opened one of the flue doors, it was all as plain as day.

Would you believe it, that gol darn heating efficiency crank, hadn't had those flues cleaned out all winter!

I just shut the door with a slam, winked at the flue brush and said:

"If you weren't a friend of mine, I'd pick out a nice, sunny room in some asylum, and send you orchids once a week."

Half the trouble with half the boilers; is half the boiler owners won't take even half enough trouble; to keep out of trouble.

But never mind my profanity.

You would have blown off some, yourself.

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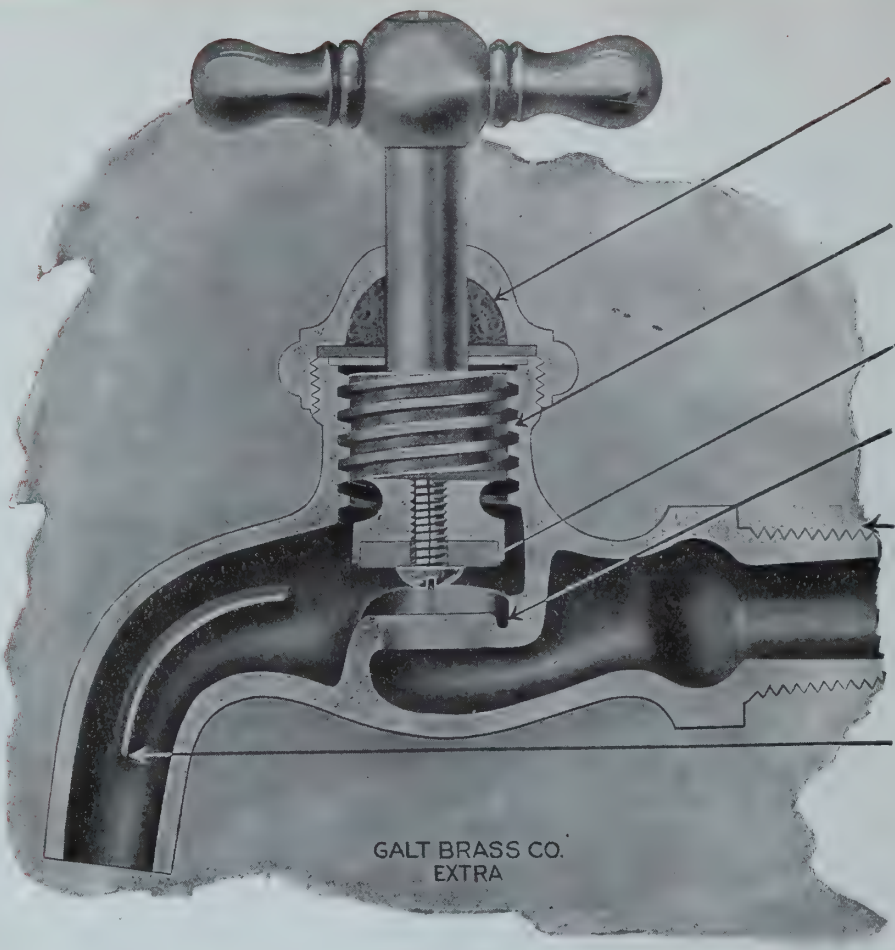

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Plumber and Steamfitter of Canada
VOL. XIV. PUBLICATION OFFICE, TORONTO, JU[illegible] 1920 No. 12

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TINKER TOM'S TALKS.

No. 265

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THE MORAL, OLD MAN—IS THIS— IF YOU NEVER PLANT ANYTHING YOU'LL HAVE JUST NOTHING. SOW A GOOD DEED, A KIND THOUGHT — A HARD DAY'S WORK FOR THE FIRM, YOU'LL GET YOUR REWARD.

I GOT MINE!

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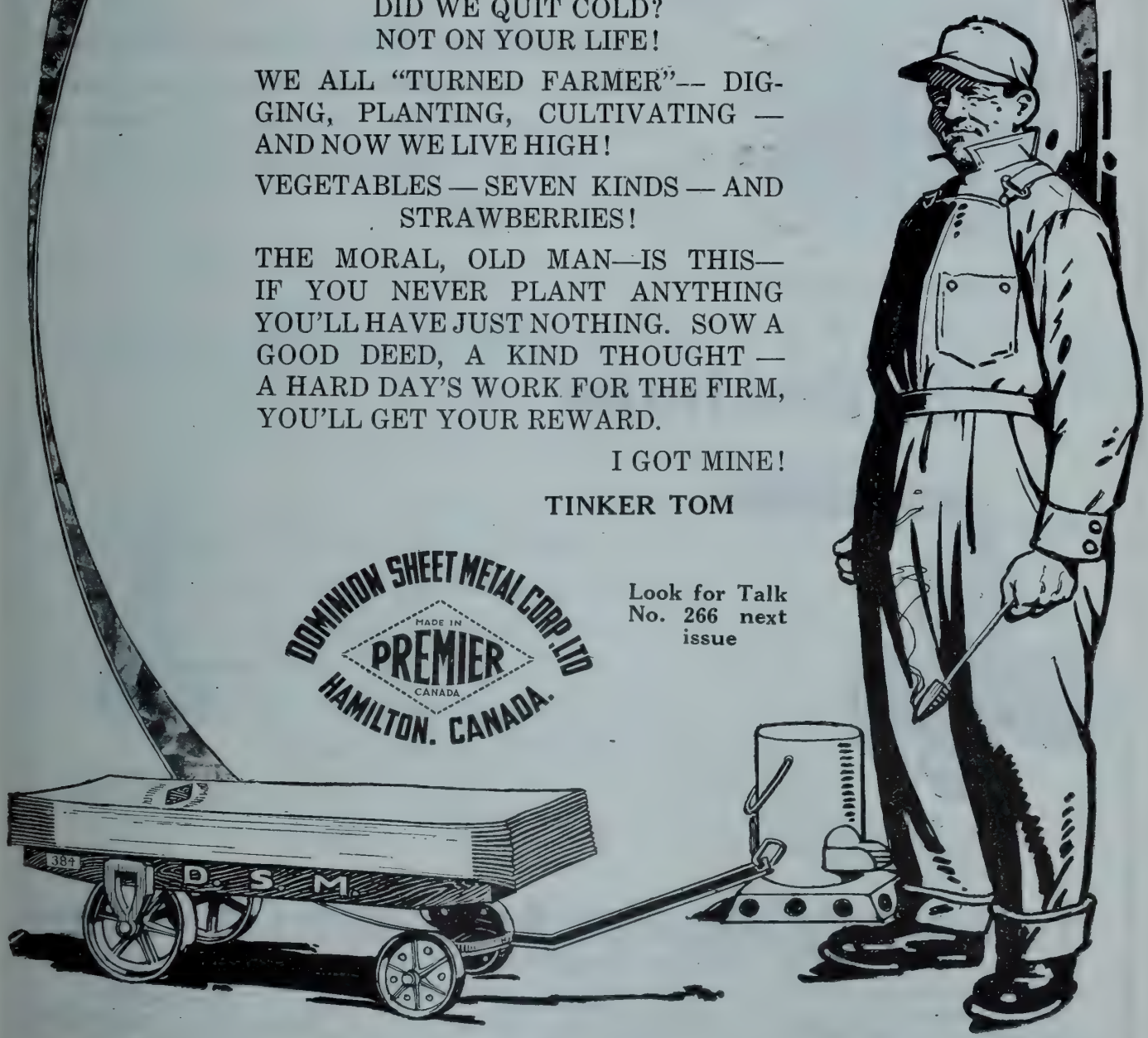
Look for Talk No. 266 next issue



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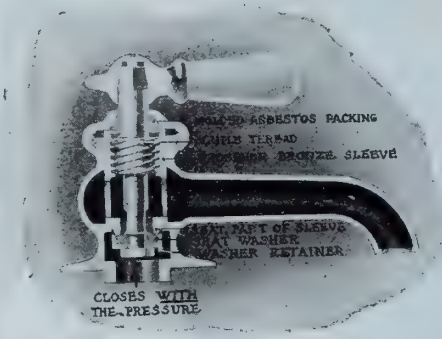

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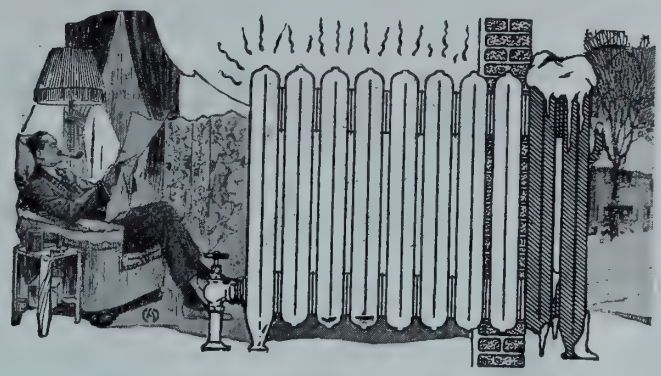

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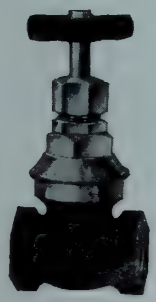

Fig. 300
Type K
BRASS GATE VALVE
Screwed

With more than half a century's record of Satisfactory Service behind them it is but natural that Jenkins Valves should have a host of imitators.

But the imitation is confined to **appearance** only. The **Service** that Jenkins Valves give, and upon which their enviable reputation has been built up, can only be secured from the genuine Jenkins Valve with the Diamond Trade Mark cast on the body.

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Catalog No. 8, picturing and describing the complete Jenkins line, will be mailed you on request—free of charge.

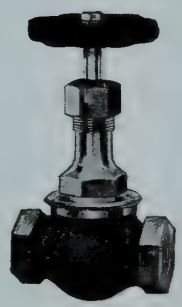

Fig. 106
Standard Pattern
BRASS GLOBE VALVE
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THE BIRTHDAY OF A NATION

A Little "Straight Talk" to the Canadian Plumbing Trade

Common practice to-day with individuals, regarding a birthday seems to be, "let's forget it." Men and women regret the recurring anniversaries which tell them of approach toward age and lessening activity. The springs of eternal youth remain undiscovered and Father Time refuses to give up his dominating rule.

With a nation, however, the situation must assume an absolutely renewed condition. The marching years, when rightly used, must step to the drum-beat of *Progress, Development, Culture* and *Wealth.* Canada has abundant reason to be proud on July 1st, 1920, of its record—our country has shown itself to be worthy of national status, and takes a place modestly yet proudly among the nations of the world.

This progress must be a vital part of the lives of the individuals who own and govern our fair Canada. Advancement in methods of living has been so marked as to be almost startling when viewed with an eye to the absolute facts. Simply compare the domestic comforts of 1867 with those of 1920!

It must be evident that the sanitary progress of Canada has quietly contributed in tremendous degree to these improved conditions. More than abreast of the times, they have studied new scientific, practical developments which would carry increased health and comfort to Canadian homes. The record is one worthy of proud mention, and the members of the craft should strive in every way to uphold and even improve the splendid position which they have obtained. Let us go on to larger spheres of usefulness with the motto:

"QUALITY, EFFICIENCY and SERVICE"

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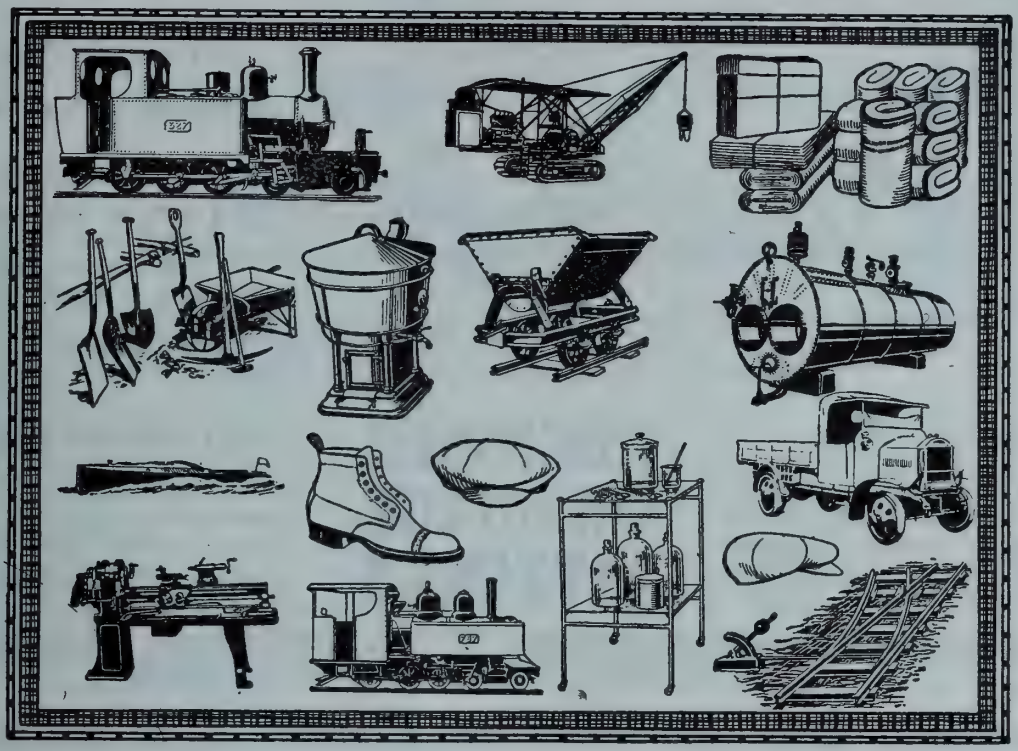

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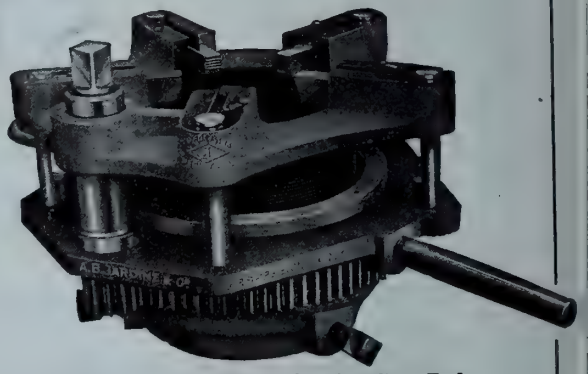

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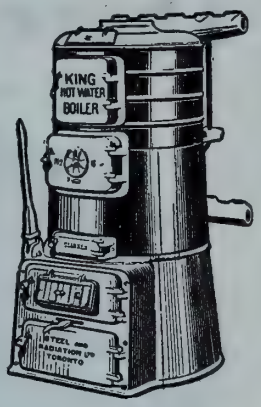

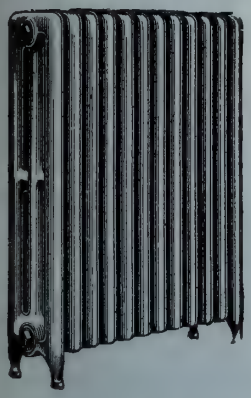

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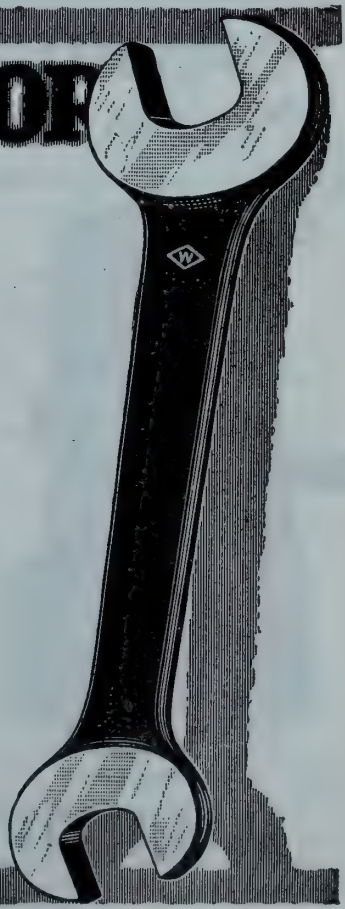

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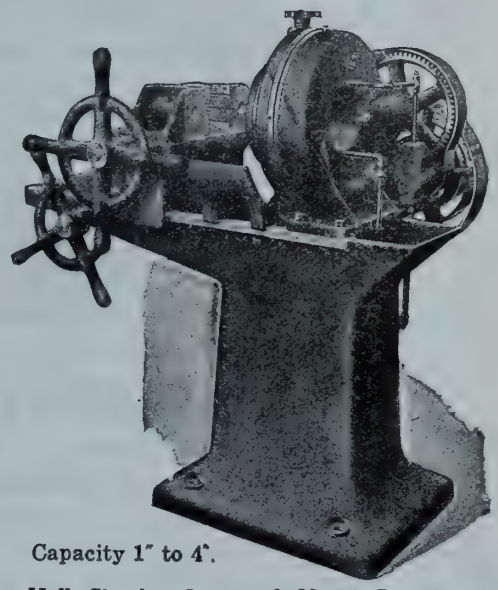

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PLUMBER AND STEAMFITTER OF CANADA

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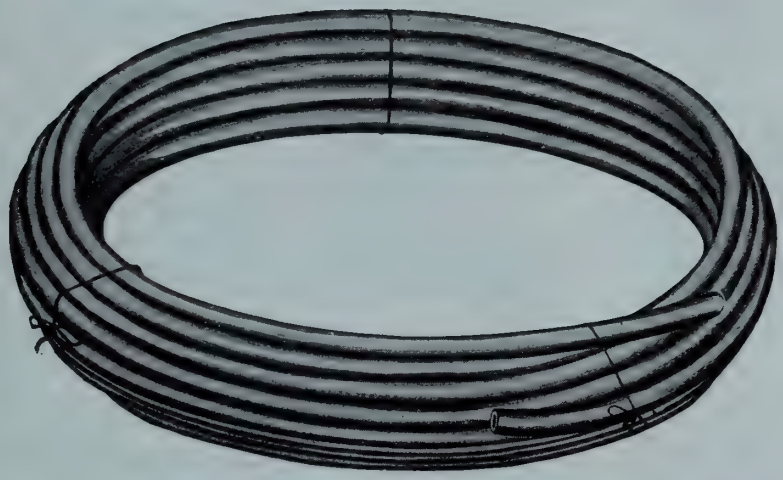

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American Waterworks Ass'n. Hold Big Convention

Montreal Gathering a Large One with Big Attendance and Wide Variety Discussion—Canadian Branch Formed—Many Important Addresses Delivered.

ONE of the largest conventions held this year in Canada, dealing with problems confronting waterworks men, was that of the American Waterworks Association. This convened in the Canadian Metropolis on June 21st and concluded on the 25th, each day being given over to a discussion of important subjects, following written and oral addresses by experts from all parts of the North American continent. Canada took particular interest in the convention this year, as is attested in the fact that a Canadian branch has been formed. This means, with the nucleus of a strong executive, that matters pertaining to the expansion of this work will receive close attention—closer than has been possible heretofore.

While in name, it would be assumed that this association is confined largely to the United States, the scope of the organization is much broader, and this was borne out in the attendance of delegates from as far away as India. Among the membership are included superintendents of waterworks plants, supervising engineers, chemists and others.

Some of the Topics

While many excellent papers were read before the convention, a number of them were more interesting than others to readers of Sanitary Engineer. Among these was one on the works of the Montreal Water and Power Company. This, delivered by F. H. Pitcher, dealt with the works of the Montreal Light, Heat and Power Company, and referred to the supplying of water to fourteen outlying municipalities. This, begun in 1891, had greatly developed, in that with a population at that time of about 30,000, the service had grown so that populations of 300,000, in the aggregate, were now being served. From a limited capacity thirty years ago, the growth had been so great that 69 million gallons of water, daily, were now available through the pumps of the company. Most of this water was supplied through electrically-operated plant. Winter conditions, as prevailing in the Province, froze the earth to a depth of seven feet, sometimes, and this had to be thawed out, when necessary, by electric current.

J. T. Lafrieniere's address on "Water Supply Problems of the Province of Quebec" was interesting. Mr. Lafreniere, sanitary engineer of the Provincial Board of Health, submitted figures as to the water supply of the Province, giving the proportionate population dependent upon wells for water, and those receiving their requirements from water plants distributed here and there at various points. The speaker dealt with the matter of Governmental supervision through the Board of Health, that the water supply of the citizens might be safeguarded, purified, etc.

Requirements of Nearly Million

When it comes to catering to the needs of a huge population, such as that of Montreal with its close to three quarters of a million souls, a very great problem, or rather series of problems, arise. Thomas W. Lesage discussed this matter under the title of "Municipal Water Supply of the City of Montreal."

Mr. Lesage went back more than a century in beginning his address. In 1801, he stated, a company had been formed to supply the City of Montreal with water brought forward in wooden pipes from the streams in the mountains. Following this, in 1815, pumping engines were installed at the river front to give users the necessary water for their varied requirements. Gradually this system of supply grew, was enlarged and improved, and from the purchase by the city in 1845 for the sum of 50,000 pounds, of the works then existing, plans had been improved upon and enlarged until, today, 108 million gallons of water may be daily supplied. To do this requires approximately 500 miles of pipe line.

Further treatment of this subject was given with special references made to the filtration plant with its capacity of 50,000,000 gallons daily, and with plans now under advisement for the enlarging of this capacity. Average daily per capita consumption was 145 gallons.

While there were many addresses of real and timely interest, each having their own particular advantages for the different classes of experts, one of the decisions of prime interest to Canadians was that of the formation of a Canadian section. In the future, therefore, it is expected that Canadian interests will receive prompt and close attention.

Nearly half a hundred Canadians gathered at the Windsor hotel to consider this matter of branch formation and following the decision to organize the following slate of officers was drawn up for the ensuing year: Chairman, Alex Milne, St. Catharines; vice-chairman, F. H. Pitcher, Montreal; sec.-treasurer, H. G. Hunter, Montreal; trustees, R. L. Dobbin, Peterborough; R. C. Harris, Toronto; Arthur Surveyor, Montreal; W. H. Hammond, Lindsay; McHarvey McCrady, Montreal; J. J. Salmond, Toronto, were selected as a committee to draft a constitution for the Canadian section.

The whole week was filled with business, interspersed with enjoyable trips to various points, including a "Shooting the Rapids" party and a trip, at the week-end, down the Saguenay. Delegates were welcomed to the city in right royal form, an address being delivered by Mayor Mederic Martin, and one by R. A. Ross, president of the Engineering Institute of Canada.

A number of the addresses delivered will be found elsewhere.

Cleveland Gets Next Convention

Cleveland was decided upon as the meeting place of the next annual convention.

PLUMBERS HAVE NO LUXURY OR TURNOVER TAX RETURNS TO MAKE

The amended taxation measures are now in effect and though the plumbing trade is not very greatly affected, yet there is much uncertainty among the craft as to its application. The elimination of nickel-plated goods from the original resolution has taken a number of lines of plumbing goods out of the taxable class. Chandeliers (except for churches) bear a 10 per cent. tax PAYABLE BY THE MANUFACTURER when over $12 in price; gas and electric light wall brackets in excess of $3 each; gas and electric light fixtures not elsewhere specified in excess of $3 each. This tax will be shown separately on invoices to the wholesaler. Another tax to be passed on will be the turnover tax of 1 per cent. on all goods sold by the manufacturer. Of course the plumber is not responsible for making returns on any of these measures.

On contracts made for future delivery the ruling is that the tax should be collected and a later ruling will be given as to the legality of the collection.

Waterworks Investment Largest Among the Utilities

Address of C. E. Davis, Retiring President of the American Waterworks' Association at the Recent Convention in Montreal—Will Stimulate Canadian Interests

THE widest opportunity for this association, I feel, lies in a change in the relationship between the sections and the central organization. The sections must be developed, those already in existence must be strengthened, new sections must be created, all with a view of a final amalgamation in one central organization of the entire water works interests of the country. This process, carried to a logical end, will not destroy our existing organization, but, perhaps, change its character, opening up to it a much wider field of usefulness along somewhat different lines.

The American Water Works Association, when it adopted its name, expressed the intention to serve as this central body. The question before us to-day is whether we propose to grasp the opportunity to act or whether we shall let the opportunity pass us by. Acceptance of the present as we find it and committing the future to our successors is the easiest course. I believe our association will elect to follow the more difficult but more fruitful path.

The majority of our members are restrained in their activities by regulations imposed upon them by public service bodies, or by the restrictions of legislative enactments or by the limitations of city laws and ordinances, Many of these restraints are irksome, and are not accepted calmly or without chafing under the restraint. Along the field of organization work we have a relatively free hand to organize and develop. We have an opportunity to demonstrate that the water works engineer and operator is a capable organizer, and, when given the opportunity, can conduct his own affairs with efficiency, and at the same time with due regard for the interests and welfare of the public, with an eye to the future and an alertness for the present. Necessary protests against undue outside restraint will come with much greater force if supported by the weight of a compact, comprehensive, well-organized and conducted association.

Predominant Importance of Water Works

"It is stated on good authority that the investment in water works represents the largest total in the entire field of comparable utilities. Water works officials know that their plants, of all utilities, supply one universally indispensable commodity—vital for human existence and basic for all community life. We have common interests, and that we are grasping for methods of expressing this interest by working together for a common end is shown by the number of water works organizations. The next step forward is the affiliation of the several organizations to handle matters of mutual interest with the power and weight that come from large numbers, unity of purpose and harmony of ideas.

"Organization is the dominant note heard throughout engineering and allied fields at the present time. The American Water Works Association, through accredited representatives, recently attended a National Council in Washington of organizations concerned with public utilities like our own, seeking to co-operate, offensively and defensively, in matters vitally affecting the interests, personal and official, of their members. Whatever may be the final outcome of such efforts, or whatever may be the path the council of affiliated societies may elect to follow, self-respect demands that the water works of the country shall be able to speak as a unit at such councils and with the weight attaching to full and not partial numbers.

Value of Comprehensive Organization.

"We are holding this convention in Canada, the home of a large number of our active, corporate and associate members. I feel confident that the further development of the principle underlying the sections will tend to stimulate Canadian interest in the same measure that I believe it will tend to awaken interest in other portions of the continent, irrespective of geological location. Water works problems are physical and material, social and political. The first two mentioned are common, irrespective of locality. The last two mentioned depend upon the human element, and human nature has common characteristics the world over. Water works men on this continent have underlying interests and will continue to co-operate in the future as they have in the past.

"We do not realize our strength because we have never attempted to exert it as a unit. Unorganized society is helpless against attacks and demands of relatively small but effective, because organized, groups working together. The existing lack of cohesion among water works men places them relatively in the position of the present unorganized public, powerful but helpless because of its inability to work together. Sometimes among our own ranks we hear references to the so-called little fellow and the big fellow. Each one of our members has something to give and something to receive. The perpetuation of the false idea of big and little, great and small, is harmful because it is based on wrong premises, is unreal and exists only in the imagination.

Water Works Men Must Take Initiative

"The public water supplies of the country are developing from year to year, meeting the growth of the country. They present highly complex technical and engineering problems. The period of outside regulation has been with us for some time past and is increasing. Local, state and national health organizations are charged with functions relating to water supplies which are sometimes arbitrary and absolute. Public service commissions are given or assume increasing authority

A group of some of the delegates who were present at the Convention of The American Water Works Association held at Montreal recently

from year to year. Water works operators must determine for themselves whether they propose to accept, without a voice in the matter, standards which may be imposed upon them from the outside, or whether they propose to set up certain standards for themselves which outside bodies must of necessity accept because of the authority behind the conclusions of the water works operator. If the latter is to be the case, the water works men must take the initiative; otherwise it will be taken from them. If the water works men do not lead, they must follow.

"Standards of practice and procedure must be done through committees and committee work will become of increasing importance. The path of the committees must be smoothed as much as possible. When the authority for committee work can emanate from a central body, representative of all the water works of the country, when co-operation comes logically and as a matter of course and not under option of possible rival organizations as at present, the desired end will be in sight.

Quebec Water Supply Statistics

59 Per Cent. of Population of Quebec Served by Waterworks—858,000 People Supplied With Filtered River Water and 17,000 With Chlorinated Water.

Address by T. J. Lafreniere, Sanitary Engineer of the Province of Quebec.

FIFTY-NINE per cent. of the population of the province of Quebec is served by water works, and the remaining 41% relies on shallow or tubular wells. The division is in close conformity with the statistics of population, the cities and towns forming 53.7%, and the rural municipalities 46.3% of the total population. In detail, the distribution of inhabitants is as follows:—

18 cities	1,101,200
81 towns	178,400
220 villages	158,400
887 rural municipalities	942,000
Total	2,380,000

There are 440 water supplies in the province, but half of them are small, in some cases serving only a few houses. A special study of the water supplies of cities, towns and villages with a population of over 500 inhabitants, shows that there are 230 such municipalities, and 192 of them, with a combined population of 1,383,700, have water works. It is interesting to note in Table 1 how the various sources of supply have been utilized:—

Table 1—Sources of Water Supplies in Quebec.

Source.	No. of works	% of total No.	Pop.	% of total pop.
Rivers ...	97	50.5	1,192,512	86.2
Lakes	20	10.4	52,879	3.8
Springs or wells ..	75	39.1	138,338	10.0
Total ..	192	100.0	1,383,729	100.0

Eighty-six per cent. of this population is supplied with river water. This is a very high percentage, but it is due to the fact that with the exception of four, all the cities use river water. When the waterworks were installed some 40 years ago, the rivers were fairly clean, and the necessity of pure water was not as well understood as it is to-day. The towns were built on the shores of large rivers offering a supply of good appearance, and consequently the rivers were used in preference to more distant sources of supply.

The lakes, on the other hand, have not been fully utilized, when one considers that only 3.8% of the population is supplied by such a source. The numerous lakes all over the province offer a first-class supply, but, unfortunately, the lakes are not near the large centres of population. Twenty waterworks use lake water, but they serve mostly small towns.

The water-bearing formations in the province are not well-known, and the available information on the subject is very meagre. Hence, 10% only of the population is supplied with underground water. With few exceptions, the 75 waterworks in this class, use springs originating at the outcrop of a porous stratum with an impervious one underneath. Such supplies are usually possible for small towns only. Several artesian wells have been sunk in the last few years, with remarkable success. The disadvantage of the source of supply is, that unless an extensive water-bearing formation is reached, the yield of the wells is uncertain and variable.

A great number of municipalities do not own their water supply, but with the exception of a part of the city of Montreal and two adjoining cities, this occurs in small towns and villages only. One municipality out of three, as will be seen from Table 2, does not own its water supply. The cost of waterworks is high, and after the construction of them, the small town finds that most of its borrowing power has been used by waterworks, and that practically nothing is left for other improvements. Consequently, in order to have both, the waterworks and the necessary funds for other improvements, the municipality grants a franchise for the waterworks, which is a revenue-producing utility. This practice is not to be encouraged, as in most cases, the system does not provide for adequate fire protection, and eventually, the municipality has to buy the system and practically build it new.

Table 2—Ownership of Water Supplies in Quebec.

Ownership	No. of works	% of total No.	Pop.	% of total pop.
Municipal	124	64.6	1,046,260	75.6
Private ..	68	35.4	337,469	24.4
Total ..	192	100.0	1,383,729	100.0

Since the creation of a department of municipal affairs, the limit on borrowing power has been removed, but the neces-

Continued on page 16

The American Water Works Association through accredited representatives recently attended a National Council at Washington

Increased Service for Sanitary Engineer Readers

In the past year or two Sanitary Engineer has introduced a number of new and distinctive features of interest and value to the plumbing and steamfitting craft in Canada, but perhaps no other individual feature will be as much welcomed as a detailed report on market conditions from Montreal. Arrangements have been made with a competent representative in that city to supply a report giving market fluctuations and tendencies, and this report will appear in each issue henceforth. This will greatly enlarge the scope of the market service which has already proved a valuable feature to readers of this paper. The adding of this service will not only give readers in the East an idea of conditions in the market concerning lines handled by them, but will give readers in other parts of Canada an opportunity of making comparisons and following the general trend of conditions as reflected in more than one centre.

Retailers Must Keep Books After July 1

Bankruptcy Act Now Coming Into Force—Assignees to Be Appointed by Provincial Governments—Benefits Open to All—Most Advanced Insolvency Legislation.

MERCHANTS are warned of the putting into effect on July 1 of the Bankruptcy Act, details of which have appeared in these columns. An order-in-Council was passed early in the year setting July 1, 1920, as the date on which the Act as passed at the 1919 spring session, is to go into force. This Act was passed after many years of fighting by those who considered that abuses had grown alarmingly under the old conditions. The bill was not allowed to go into effect at once as it was desired to give the business community a year or more to adjust itself to the new situation.

There are several important features in the new Bankruptcy Act, which has been declared by merchants and others to be the most advanced piece of insolvency legislation on the continent.

It provides that all assignees must be appointed by the various Provincial Governments, and that they must be capable men who will be bonded for the work they are to perform.

Open to Private Citizens

Another provision is that the benefits of the Act are open to men in business, or private citizens, if the latter so desire to make an assignment. They may be declared insolvent if it is found that the circumstances warrant such action. When a merchant has filed a statement showing his financial condition, his creditors can take action to have him declared insolvent if his statement justifies this being done.

All Must Keep Books

Another important feature of the new Act is that all persons carrying on business must keep books showing the record of all their transactions. This becomes compulsory from the date of the Act coming into effect, namely July 1.

As it passed the House the measure had the support of business and professional men of all classes, and its provisions are claimed to be equally fair to those in all lines of trade as well as farmers and private citizens.

QUEBEC WATER SUPPLY

(Continued from page 15)

sary majority to sanction a by-law has been increased. Hence, it is hoped that the number of municipal waterworks will increase.

If we examine the use made of the various sources of supplies by the municipal or private corporation as indicated in Tables 3 and 4, we find that in both cases, over 85% of the population is supplied with river water. Two private waterworks only, use lake waters, while forty small supplies are derived from springs and wells:—

Table 3—Sources of Supply for Municipal Water Works

Source.	No. of works	% of total No.	Pop.	% of total pop.
Rivers ...	71	57.3	903,778	86.4
Lakes	18	14.5	49,929	4.8
Springs or wells ..	35	28.2	92,523	8.8
Total ..	124	100.0	1,046,260	100.0

Table 4—Sources of Supply for Private Water Works

Source.	No. of works	% of total No.	Pop.	% of total pop.
Rivers ...	26	38.2	288,734	85.5
Lakes	2	3.0	2,950	0.9
Springs or wells ..	40	58.8	45,745	13.6
Total ..	68	100.0	337,469	100.0

Although 86% of the population served by waterworks is supplied with river water, which is usually unsafe for domestic use, all of this water is not consumed without previous treatment. In the province to-day, 858,000 people are supplied with filtered river water, and 170,000 with chlorinated water, giving a total of 1,028,000 people using treated water. This number represents 86% of the population using river water. Six municipalities, with a population of 60,000 people, now chlorinating their supply, have been ordered by the Superior Board of Health, to install purification works.

Table 5—Treatment of River Waters

Treatment.	No. of installations.	Population served.
Filtration	29	860,000
Chlorination ...	15	170,000
No treatment ...	53	163,000
Total	97	1,193,000

Lake water and underground water being naturally good, it would seem that our water question is practically solved. Unhappily, this is not so. The great percentage of the population is protected against water-borne diseases, but the remaining 14% is divided among many small municipalities which will be harder to reach than the larger towns.

It appears from Table 5, that 53 towns, with a combined population of 163,000 inhabitants, use river water without any previous treatment. The streams from which these supplies are derived are more or less contaminated. Moreover, approximately 20% of the towns supplied by underground water have a supplementary water intake in a nearby stream, for fire purposes.

The Quebec Public Health Act of 1915 gives to the Superior Board of Health extensive powers concerning the control of water supplies. All new water works must be approved by the board before being installed. Furthermore, the board has the right to make investigations and to order purification works where needed, or to order the causes of pollution to be removed. When the supply is owned by a private corporation the Quebec Public Utilities' Commission decides whether the cost of the improvements shall be paid by the private corporation or by the municipality, and in what proportion. To comply with the orders of the board, the municipal corporation is allowed to borrow the necessary amount without being obliged to submit the by-law to its ratepayers, and the board has the right to have the improvements done at the expense of the municipality when the latter refuses to submit to the order.

But even with these extensive powers, the improvements necessary to the water supplies of the small towns above mentioned may not easily be obtained, because of the excessive cost of materials and the high rate of interest charged for municipal loans. The difficulty thus reduces to the financial question of how to obtain money for these small towns at a reasonable interest rate.

This difficulty the Board of Health hopes to overcome by means of a project, now under consideration, whereby small municipalities may borrow from the province, and at a low rate, the funds required for the needed improvements. If, as is expected, the legislature sanctions such a project, this most important remaining problem of water supplies in the province of Quebec—the problem of the small town supply—may be susceptible of solution.

90% of Plumbers' Shops Are an Encumbrance

Proper Business Premises Readily Accessible to the Public Are an Asset—D. MacLulich Sounds Doom of Side Street Businesses Operating from Dwellings and Cellars—Salesmanship Training Would Develop Greatly Increased Business for the Plumbing Trade.

SPEAKING on the subject of Efficient Accounting and Business Management, at the Wednesday evening session of the convention, Mr. D. MacLulich emphasized the fact that business is becoming increasingly scientific and that the plumber is compelled to make himself conversant with accepted principles of business control in order to compete with others in the trade.

"The greatest business of the world was the recent war," said Mr. MacLulich, "and we were considerably astonished by the help given by scientific experts. Science is a system of accurate knowledge applied to any subject or group of subjects. It is built on reports and records. Science applies to the smallest business as well as to the largest. Business inefficiency must be smouldered by the man who is running his business efficiently. Accurate knowledge of the business is necessary to success.

"In your books you may have information concerning your business but it is not available in compact form at the right time. At the end of the year it might be available but then it is too late. That accurate knowledge must be available at all times if you would control your business. In these days it is not sufficient to know what has happened to your business at the end of the year, you should know from month to month. Business is made up of innumerable transactions, some of them by themselves very insignificant, but every one of them is building up to that final climax of success or failure therefore you should be able to control those transactions and make sure the outcome is favorable.

Know th Facts Month by Month

"Good bookkeeping must disclose readily the true facts and must disclose them so that month by month you will know where your are heading. In a greater or less degree if you have a good bookkeeping system it must disclose to you not only the result of your transactions as they occur but it must disclose to you the factors that have brought about the resultant profit or loss.

"Good bookkeeping must be a compromise because no hard and fast rules can be laid down. It must be a compromise between theory and practice. A system that applies to one shop might not be applicable to another shop because of established custom, or the peculiarities of the proprietor. Efficiency with simplicity, is a good slogan for a bookkeeping system.

JOBBING BUSINESS LEAST AFFECTED BY INDUSTRIAL CHANGES

"Don't worry about what your competitor is doing. Be happy, hoe your own row and let the other man go. Do not let his business worry you. Be courteous, for courtesy is the greatest fertilizer that can be given to your business. Attend promptly to your orders, because you not only lose a job, but you lose a connection if there is delay. Give an honest job and charge a fair price for it. Be fair to yourself and to your country. Never cut a price as a rule of business. Never be afraid to let the public know you are making a profit. In view of the constant predictions of a slackening of business it is not a sound policy to confine your energies to contracting work. Jobbing is the least affected by any such change in business conditions."

Three Factors in Net Profits

"The aim of all business is net profits and there are three factors which make these up. 1, the percentage of gross profit; 2, the volume turnover; 3, overhead expenses. Your system of books must show the relationship between these factors. If your system is right you can quickly diagnose the percentage of gross profits. If you follow the judgment of your trade your gross profits will be sound. If you have made a loss your gross profits may be all right so then look at the turnover. If your turnover is all right look at the overhead expenses. These may be out of proportion to your turnover. If you can separate the items of overhead and see where the trouble is. Perhaps the advertising item is too heavy for the results. If so it would be well to call in an advertising counsel to find ways of increasing the results from the money so expended.

"Business should be conducted from a proper business premises and readily accessible to the public. It should present to the community a continual appeal. It should make them feel you are always ready to do work for them. Doing business from a dwelling on a side street does not pay. I am looking forward to the time when there will be fewer master plumbers and the ones that exist will be raised to a higher standard. Everyone should seek to build up business on the broad basis of the general public and not on a few general contractors. The side street business of this nature is not going to be the business of the future.

"Ninety per cent. of the stores in this trade, instead of being an asset to the business, are an encumbrance. To operate from an untidy, ill equipped store, is not advertising the business in the right way, it is rather developing inefficiency. The public think they can jew you down because you put yourself in the class where they think you can be jewed.

Salesmanship

"Most of you started as mechanics and some of you have got into the category of business men. Others are not yet truly in that category, they look at things too much from the mechanics' viewpoint. Mechanics form the basis of your business but if you are going to be more than a mechanic you have to be continually reaching out. No mechanic can earn with his hands more than a decent living. Profits in business are the result of brain work and management and the application of salesmanship, advertising, etc. Do less work with your hands and more with your heads.

"Every man in the business can be a salesman and he can train himself. Every time you go into a house keep your eyes open. Think of yourself as an owner of a business which is rapidly going ahead. You will often see things that you can suggest to be done. The mechanic does nothing but what he has been told to do and when he gets into business for himself he is inclined to do the same thing.

Advertising

"We plumbers spend quite a little on advertising but when you look at the average plumbers' store the effect of the advertising is killed. The store is of one of the best advertisements. Fix up the windows so your store will always make a pleasing appeal. Don't put ball cocks and washers in the window, put in a fixture and a couple of ferns or something along this line.

Service

"Don't forget that service pays. One of the surest bets for successful business is service and no business will be successful eventually without it. Price is not nearly as important a matter as service. The consuming public to-day are being educated to pay the price, but there is one thing we want when we pay the high price, and that is full value and service. It is not the price you charge the public but the service you give them. Some

customers will always kick but the majority of people will not kick if they get the impression that you are an honest business man and you are giving them a good job for the money."

A Bookkeeping System

Dealing with a bookkeeping system used by the firm represented by him, Mr. MacLulich divided all business transactions into three main classes: purchases, sales and cash. These divisions applied to any business whether large or small, being subdivided into other divisions if necessary.

"We devote one book to record all sales, another for purchases including wages, material, etc," said Mr. MacLulich. "The cash book is separate. The sales book has a white and yellow duplicate sheet, each numbered and bound in book form, the white sheet being perforated. Every order is entered with the name of the customer, work to be done and date. This information on the white sheet forms the instructions to workman and is returned by the workman on completion of the job with a record of the amount of time spent on it, material used, etc. The workman's time card bears the same number as the yellow sheet as an invoice to his employer. No other information is listed on the time card. A file of unfinished work is kept handy in the office. Following this system the job can be billed out to the customer within a day after its completion. The yellow sheet in the bound book is the official record and the entries on it are completed from information put on the white sheet by the workman, and posting is done from the yellow sheet to the ledger.

"On the yellow sheet opposite each item of material used the selling price is recorded with the percentage of overhead expenses and percentage of profit. At the end of the month these figures are listed by the number on the sheet and the total shows the prime cost, the amount of overhead sold and a comparison with the expense account, and the total profit, which can be figured against total sales and a percentage arrived at.

"Cash book entries are posted to the ledger in the usual way. The cash book contains entries for all cash, cheques and notes received or issued. A debit to the business for all cash received is made, and all cash is kept in the bank, a cheque being issued for each payment. C. O. D. orders are listed in a special column in the cash book and no ledger account is opened.

Purchases

"A purchase is a purchase whether it is paid for or not. Small sundry purchases are recorded in a separate cash purchase column. Other items in the purchase book are as follows: services from men, telephone charges, etc. In the purchase book are the following headings: stores, contracts, with subhead for material and wages; jobbing, with subheads of material and wages; expenses; tools; sundries."

No Ventilating Into Street Area

Kingston Board of Health Thinks That Cellar Closets Should Have Shaft to Roof—Sanitary Inspector Makes Report

Kingston, Ont.—Sanitary Inspector Carson's report aroused a lengthy discussion at a recent meeting of the Board of Health.

The subject of ventilating closets into the street was discussed for a considerable time. Seventeen stores on Princess street were reported to have closets in the basement with no ventilation and some of the owners desired to run a vent through the cellar window to the street area. Many of the members of the Board did not consider this sanitary, and thought they should be ventilated by an air passage through to the roof. While the city bylaws do not allow a chimney flue to be used for such a purpose the Board claimed a chimney flue provided one of the best means of ventilation and thought many of the defective cellars could be improved at small cost by using such flues. On Mayor Nickle's motion, the Board decided to recommend that the by-laws be amended to require all closets in cellars to be ventilated by a shaft leading to the roof.

The inspector reported that there were sanitary areas which were defective as regards sanitary conveniences. In 32 cases improvements could be made without much trouble but the Board felt that under the circumstances the matter should not be urged too strongly at present. The matter was left with the inspector.

Fifth street and Bagot street, between James and Charles streets, were reported to be without drains. The residents on Bagot street will be asked to make application if they desire a drain and the City Engineer will be asked for a report on Fifth street.

Five houses on Corrigan street were reported unsanitary as regards sinks and the brick work was stated to be in a dangerous condition in places. This was referred to the Plumbing Inspector.

NEWSPAPER EMPLOYEES' BUYING

In commenting on the question of newspaper advertising and its value, J. J. Druce, vice-president and manager of McKelvey and Birch, Ltd., Kingston, Ont., brought out a point which is very often overlooked. That is the buying power of the newspaper as a company and meeting the individual employees' requirements. "We find that we are getting a tremendous amount of business just from the papers themselves and their employees," Mr. Druce pointed out. "We have been called upon to do a great deal of work around the printing plants. We know also of many employees who buy from us through our advertising and who influence their neighbors to do likewise. If we were getting no more business than that generated from these sources as a result of the space we are using, we would feel well repaid."

Did you ever consider the newspaper in the light of a source of revenue as well as an expenditure? Think it over.

IT DEPENDS ON PRODUCTION

MONTREAL.—"If we can get production we're alright."

Such was the statement made to Sanitary Engineer by C. F. Smallpiece, Montreal manager of the Taylor-Forbes Company, when asked as to the radiator situation.

"It will be impossible to overtake the lost production, however," continued Mr. Smallpiece," and those wanting supplies should order them early."

There has been quite a considerable delay and interruption in manufacturing this year, on the part of some foundries, and altogether, with embargoes and shortage of material, Mr. Smallpiece believes that those who are to avoid disappointment will help matters by placing their legitimate orders without undue delay.

PLUMBER DOES NOT RETURN FOR TOOLS

A Chattanooga plumber has effectually served notice on the public that the standing joke about plumbers charging $1 and more an hour "to go back after their tools" does not apply to him. He carries his complete plumbing shop with him to every job in an automobile. The interior of the panel body is so arranged that there is a place for every tool and every part. There are no return trips and no delays. The owner is fully aware of the advantage he enjoys with this equipment and uses it in his advertising. The car is painted purple, tinted in maroon and lettered in gold leaf.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

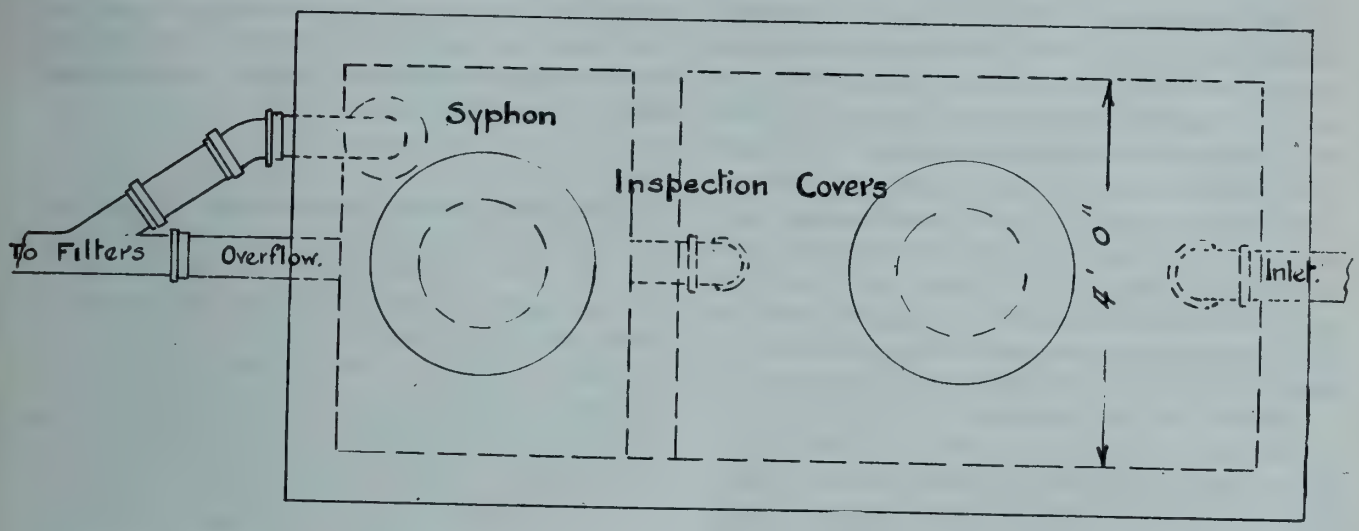


FIG. 17.

Article No. 11 of the Series—Illustration No. 17

(Continued from last issue)

ANOTHER type of septic tank, which is designed on a bigger scale for larger buildings, is illustrated in Fig. 17. The liquefying and syphon chambers are constructed on similar lines as previously described, the bottoms of each sloping to a central cleaning-out pipe connected to a sludge pipe, thus providing good facilities for emptying and cleaning out both compartments at any time.

A simple, effective and easily constructed septic tank for the use of a small family can be constructed out of 24-inch or 30-inch glazed vitrified sewer pipe. The pipes should be made perfectly watertight with neat cement joints and rest on a solid watertight concrete foundation. Great care must be taken in order to get the bottom of the pipes perfectly watertight, which can be best accomplished by bedding the pipes in fine concrete before same has permanently set and carrying the concrete wall up the sides of the pipes, which would be roughed up so as to provide a rough surface, ensuring better adhesion between the concrete and the pipe's surface.

EDITORIAL COMMENT

BANKRUPTCY ACT NOW COMING INTO EFFECT

THE Bankruptcy Act as passed at the 1919 Spring session of the Dominion Government comes into effect on July 1. Merchants are warned that after that date they will be held responsible for a complete record of their business through the medium of a recognized accounting system. This act was passed after many years of fighting by those who considered that abuses had grown alarmingly under the old conditions, and the bill is declared to be one of the most advanced pieces of insolvency legislation to be found anywhere on the continent.

While the Act requires a little more careful attention to records than has been practised by some dealers, the benefits from such legislation accrue to all in equal proportion and it must therefore be looked upon as a progressive measure. Important points in the new Act are those providing for the appointing of assignees by Provincial Governments, the necessity of all merchants keeping books in order to show their true condition of affairs in the event of insolvency and to thereby facilitate a declaration of insolvency.

MAY TAKE STEPS TO BRING MAXIMUM TAX RETURN

RETURNS to the Government under the new system of taxation have been disappointing to date and no attempt is made to disguise the fact. On the other hand the Assistant Deputy Minister of Customs comes out boldly with the figures showing the number of returns made from merchants in the city of Montreal as compared with the number in business in that city. He goes further and makes the statement that the licensing system which was authorized as part of the original resolution will be enforced to bring in the required returns. Under this system a dealer's license can be cancelled and he can be prevented from doing business until again authorized. Such action would be rather arbitrary but it is evident the Government has means at its disposal for enforcing the law. The substitution of the plan for collecting the revenue by means of luxury stamps may render such action unnecessary. Inspectors could then check up dealers in similar fashion as is now being done in regard to the stamp taxes on certain lines. A number of other interesting and important phases of the matter are outlined elsewhere in this issue.

DEVELOPMENT OF RESOURCES TO 25% OF VALUE WOULD PAY CANADA'S DEBT

CANADA'S great need for production to overcome the great burden of debt which must be paid, was emphasized by W. A. Buchanan, M.P., in a recent address before the House of Commons. "We can produce in the factories, on the land, and in the mines of this country," said Mr. Buchanan. "We have great natural resources that only need to be developed in order to enrich this country; and if we could only develop those resources to the extent of one-fourth of their value at the present time we would have no trouble in meeting our obligations as a nation. There is no cause for any person in this country to be discouraged about the future of Canada. All we need to do is to move around this Dominion to realize the great resources we possess; and we cannot help but become prouder of our country and cannot help but glory in the fact that, in Canada, we have as great wealth and as great opportunities as are to be found in any land in the world to-day. What is requisite is to encourage the development of those resources, and, given an opportunity to the people to take advantage of the wealth that is in the country, there will be no need for the Government to worry about the future of Canada and no need for the honest, capable and ambitious citizen of Canada to worry about it either."

BUSINESS CONDITIONS ARE SOUND

BUSINESS conditions in United States and Canada are fundamentally sound. Circumstances are not the most favorable, and there are many troubles that will not be removed for weeks and months to come. But, allowing for all that, there is nothing of the blue-ruin type in sight.

A representative of this paper attended a meeting of the Editorial Conference of Associated Business Papers in Chicago last week, where business conditions in all the fields represented were discussed by experienced business editors who were in close touch with the trade in their varied fields.

Many of the speakers made the point that the railway situation in United States, following the switchmen's strike, was the root of the trouble. The strike had been a vicious attempt to paralyze the nation's business in the shortest possible way, and for a time success was with the strikers. Canadian industries have a lot of raw material coming from United States. They can look for improvement before long, but the improvement will not be sudden, and it is likely that many months will pass before traffic is passing with the necessary speed between points in the two countries.

One point was brought out that shows a wheel within a wheel, in that the inability of the railroads under present circumstances to transport material to the shops making cars and engines would delay rapid recovery in the railroad problem. In other words, the poor physical shape of many of the roads is making it hard for them to help themselves.

The iron and steel industry has a large volume of perfectly good business on its books. Production is now around 75 per cent. of capacity, but when it is considered that capacity increased some 40 per cent. during the war, it will be seen that 75 per cent. production now is really greater than 100 per cent. capacity in the pre-war days.

The lumber trade reported declining markets, but there were factors that had been in operation to keep the markets from being filled up when these declines were on. Strikes and poor weather had kept the cut down. One expert on the situation claimed that the policy of the larger dealers in a declining market is to force the situation as much as possible and reach bottom at once, depending on past experience of reactions after sharp declines to bring them safely out of any troubles.

The feeling was also expressed that stability could be lent to the present situation in a marked way by a feeling that prices had gone their worst. Of course, there are exceptional cases where this cannot apply. In the main, though, it is worth serious consideration. Several cases were cited where large projects were hung up for the present, because those behind them were not inclined to go into the market for building or equipment, because they knew that costs would be so high that they would be unable to compete with the product of plants that had been built in pre-war times.

Business and banking circles reported that credits were being tightened rather than extended, but they claimed that the general effect was regarded as good. Makers of touring cars were being notified to cut down on their output, while builders of trucks and tractors were being assisted to go ahead. The reason was that the building of the latter would result in a greatly increased area of land being worked on the farms, and thus the new wealth of the country would be added to from year to year.

In all reports that were delivered, there was nothing to shake confidence, or to cause one to feel that the future had in store anything that sane common-sense could not surmount.

WINDOW DISPLAYS MEAN SALES

TO thousands of people, especially those who have to do the buying, the windows of a store are like the index of a book. They tell what is within. If the windows are always neatly dressed, and care is taken to show seasonable goods and stock that is well cared for, and in good condition, the impression created for the store is a favorable one. The prospects are that one is reasonably justified in deciding that a good window display indicates a "live" store, where one may expect good service. It is a good advertisement.

Many people before deciding just what they want to buy and where they want to buy it, proceed to look into the windows of their town stores. Especially is this the case with a buying class who do not have time to shop by daylight, but see the windows only at night. A well-dressed window works every minute, twenty-four hours a day, and as many days as it stays in. Good window displays are essential the year round, but with the exception of the Christmas season, there seems to be no time that they are watched more closely than in the spring and summer months. In many centres where holiday-makers go for their summer vacation, small towns adjacent to watering places, merchants can do much to stimulate sales by attractive window displays.

Dealers have an opportunity that should be taken advantage of, an opportunity to place before the eyes of prospective buyers, not a picture, but the real goods. It is well to keep in mind that in the window displays of the most progressive merchants, prices of everything are invariably shown.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

NEW BUSINESS

Castor, Alta:—E. Perschbacher has commenced a plumbing and tinsmithing business.

ST. THOMAS PLUMBERS TO OBSERVE WEEKLY HALF HOLIDAY

St. Thomas, Ont.—The journeymen tinsmiths and plumbers of the city have decided to observe the Saturday half-holiday.

GUELPH RATEPAYERS WANT SEWERAGE CONNECTIONS

Guelph, Ont.—A number of ratepayers on Surrey street East have applied for sewerage connection for sanitary purposes. The matter has been referred to the Public Works Committee. Property holders on Manitoba street presented a similar petition for their street and this was also referred to the committee.

WATERWORKS SYSTEM FOR SOUTH STAMFORD

Niagara Falls.—A scheme is being considered for a waterworks system for the south end part of Stamford Township. The outlay will amount to $125,000. Three schemes are being considered wells and standpipe and pump, spring and a supply from Niagara Falls.

MOVES PLUMBING SHOP

Nanton, Alta.—V. T. Shattock has moved his tinning and plumbing shop from next door to Marshall's hardware store to that formerly occupied by S. B. Mitchell.

KITCHENER TO DEVELOP BRIDGEPORT WATER PLAN

Kitchener.—It is announced here that the local water commission will proceed with the development of the Bridgeport water works project. Final plans will be drafted by Superintendent Marcel Pequegnat. He states that the plans will be ready so that work can begin this fall.

CONTRACTS AWARDED

Sudbury, Ont.—Gustianna & Zettler have been awarded a contract by the International Nickel Co., and have commenced work on the laying of sewer and water mains in different parts of Copper Cliff. New houses recently erected will be served, while connections and new mains will be constructed. The work will be completed this summer.

Chatham.—The Des Moines Steel Works, of this city, have been awarded the contract for the three new pressure filters to be added to the present waterworks plant. The price of the filters is $13,497.

VOTE ON WINGHAM'S WATERWORKS SYSTEM

Wingham, Ont.—On July 5th, a vote will be taken as to the advisability of placing the waterworks department under a Public Utilities Commission. A vote on a by-law to authorize the expenditure of $6,500 on extensions to the waterworks system will also be taken.

WEST TORONTO FOUNDRY CLOSES

West Toronto Foundry Co., manufacturer of iron soil pipe, have closed their plant and are clearing out the stock. Robert MacGilchrist, the proprietor, who has been in the foundry business since a boy and successfully conducted the West Toronto foundry for a great number of years, recently went on a health-regaining trip to California and became so enamored of that country and its climate that he has decided to locate there.

WINNIPEG WATERWORKS SHOWS PROFIT

Winnipeg.—Profits of $37,097.70 were made by the city waterworks department during its fiscal year ended March 31, W. H. Evanson, city comptroller, reported to the finance committee.

Revenues aggregated $807,628.64 and expenses, $770,530.94. The profits wiped out a deficit of $9,003.51 on the books at the beginning of the year and established a surplus of $28,094.19, when the year ended. The profits were $1,125.49 more than anticipated.

LONDON MAY VOTE ON WATER SUPPLY

London, Ont.—Though the matter has not yet been brought under discussion, it is expected that a vote will be taken in January on a scheme to augment the the city water supply. The shortage, during the recent hot weather has again been acute. The city can maintain a spring water supply for a further period by connecting up with the Kilworth fields, beyond Springbank, where from 3,000,000 to 5,000,000 gallons of pure spring water is available, and also by drilling more artesian wells. Eventually, however, it will be necessary to turn to the north branch of the River Thames, according to General Manager E. V. Buchanan. Later, as the city's population grows, an unlimited supply will be procurable through the construction of a pipe line to Lake Erie.

DEFER ACTION ON HOMESIDE WATER SUPPLY

Hamilton.—The supplying of residents of Homeside—the district annexed to the city a short time ago—with water is before the Works Committee of the City Council, and action is temporarily deferred. It was reported that the installation of the service would cost $57,552, and before the Railway Board would permit the issue of debentures to cover such an expenditure a revenue of ten per cent. of the cost must be shown. It was regarded as a breach of faith not to give the residents of the district water service. The necessary revenue, however, could not be assessed.

STERILIZE WATER WITH VIOLET RAY

Brandon, Man.—By means of the use of ultra violet ray for sterilizing water, the Provincial Government is ensuring that the water supply for the Brandon hospital for the insane shall be as pure as possible. Recent inventions in the electrical world have made it possible to utilize the powerful ray for this purpose, and the effect is said to be to kill all the living organisms in the water. Water from the Assiniboine river, tested after passing through the process, has been found to be absolutely sterile. The total capacity of the Brandon installation is 250,000 gallons per day.

ORDER NEW FILTRATION PLANT FOR SMITHS FALLS

Smiths Falls, Ont.—Dr. McCullough Provincial Officer of Health, has written that the Provincial Board of Health could no longer defer action requiring the town to install a filtration plant. He wrote that he had advised the County Sheriff to serve the council with an order under the Health Act requiring such a plant to be constructed immediately.

The following report on the town's water supply from the assistant sanitary engineer was presented to the council.

The Provincial Board of Health recommended a purification plant of either the rapid sand, drifting sand or slow sand type be installed.

W. F. HILL MOVES TO TORONTO

W. F. Hill, of W. H. Cunningham & Co., who since his connection with this company has been living in Buffalo, has now moved to Toronto. Before linking his interests with W. H. Cunningham & Co. Mr. Hill was with the Good Manufacturing Co., New York.

Convention of Western Sanitary Inspectors

To be Held in Edmonton on August 26, 27 and 28—New Constitution and By-laws Are to be Considered

Winnipeg, Man. — The Sanitary Inspectors' Association of Western Canada will hold their annual convention in Edmonton on August 26th, 27th and 28th.

His Worship the Mayor and the local members have promised to make the visit of the delegates pleasant as well as profitable. As the proposed new constitution and by-laws will come up for consideration, the secretary hopes the members will make a special effort to be present.

The annual business meeting for election of office bearers, etc., will be held in the Council Chamber, City Hall, on the evening of 27th.

VANCOUVER TO ENFORCE EXAMINATION FOR PLUMBERS

Vancouver.—After several years of agitation on the part of the master and leading journeymen plumbers of the city to have closer civic supervision of all plumbing work, examination and licensing of all plumbers is again to be enforced shortly by the city. The civic health and building committee, acting on the recommendation of City Building Inspector Bird and after hearing F. Welsh, of the Metal Trades Council, have decided to instruct the city solicitor and city building inspector to draft a by-law to again provide for the licensing of all plumbers.

The proposal, as at present outlined, is for all plumbers to pass an examination to be conducted by a board composed of one representative each of the city building inspector, plumbing inspector and city engineer's department, together with one each from the master plumbers' association and the local plumbers and steamfitters' union. The annual registration fee for master plumbers, firms or individuals will probably be set at $25 and that of journeymen plumbers at $1.

PLUMBERS TO GET 90 CENTS AN HOUR

Toronto.—Ninety cents an hour will be the wage of union plumbers and steamfitters commencing July 1, Secretary W. J. Storey of the local union of plumbers and steamfitters, announces. Mr. Storey said that, while the agreement between the Toronto Society of Domestic, Sanitary and Heating Engineers, increasing the wages fifteen cents an hour had not been signed, wages had finally been decided upon. There will be some minor changes in the agreement affecting working conditions.

NEW CHIEF COMMISSIONER OF WINNIPEG WATER DISTRICT

Winnipeg.—W. M. Scott, C. E., has been appointed chief commissioner of the Greater Winnipeg Water District, succeeding J. H. Ashdown, who has been acting chief commissioner for some months.

Following is an outline of the engineering career of the new commissioner:

Employed by Messrs. Lee & Coffin, consulting engineers of Montreal and Boston as inspector; assistant engineer and engineer in charge of water supply, sanitary and water power projects; contractor's engineer on railway construction, also carried on contracting independently for several years; town engineer of New Glasgow, N. S., and manager of the town's public utilities; resident engineer at Point du Boie for city of Winnipeg power development from October, 1906, until the end of 1911. During this time carried on considerable day labor work; built and operated the tramway. This project was a going concern when the contractors entered upon the work in 1909.

Since leaving the employment of the city of Winnipeg, has been in private practice in this city, and among other works engaged in past and present, are: Design and installation of water supply and sanitary systems for Transcona, main extension of the city of Winnipeg power plant, in 1917-18; valuation of the Winnipeg Electric railway properties; reorganization of the Brandon waterworks; consulting in connection with the Kenora, Ont., hydro electric plant; reporting on utilities for Keewatin, Ont., and similar work for private parties.

C. A. DUNHAM CO., LTD.

Dunham hand book No. 114, has recently been issued by C. A. Dunham & Co. The book consists of compiled information on Dunham products such as radiator traps, blast traps, medium pressure traps, radiator valves, air line valves, Dunham air eliminator, return traps, etc. Talks on such subjects as steam heating, methods of calculating radiation and other important data receives much attention in the book. Information of great value to the plumber and steamfitter is contained in the book and its handy size makes it easy to carry for reference. The various points are dealt with in a clear concise manner, and all explanations are well illustrated.

HE'S GOTTA COME DOWN

—Talburt in the Toledo "News-Bee."

Once the farmer has a good supply of running water you will have no trouble in selling him a complete bathroom and kitchen sanitary equipment.

There are a number of satisfactory water systems on the market whose installation would mean splendid revenue and an opening for the sale of

Port Hope

—an Eastern Ontario plumber reports:

"We make a special feature of rural water systems in our business because with the installation of running water we have no trouble selling the farmer a complete sanitary equipment for his home. The key to the development of rural plumbing trade is running water." Following this comes the sale of

Port Hope Sanitary

Enameled Plumbing Ware

There is a splendid opportunity for even our city plumbers to develop this end of the business. There are many homes going up "just outside the city," which must be fitted with sanitary equipment. Now is the time to look into this business. It's worth your while.

Carry a Port Hope Sanitary "For the Home" Catalog with You

Port Hope Sanitary Mfg. Company, Limited

Factory:
PORT HOPE, ONTARIO
TORONTO SHOW ROOMS
119 King St. East

WINNIPEG OFFICE
405 Tribune Bldg.

Head Office:
ROYAL BANK BUILDING, TORONTO
MONTREAL SHOWROOMS
234 Beaver Hall Hill

HALIFAX OFFICE: McCurdy Building, Hollis Street

Enamelware

Steamfitters Should Be Licensed

Steamfitters' Ontario Representative Says Licensing Law Should Have Been on Statute Books 25 Years Ago—Many Factory Employees

A communication from the Steamfitters' Ontario representative, dealing with the subject of licensing steamfitters, is as follows:

Sir: How long is the public going to stand for accidents caused by steam explosions with loss of life in nearly every case? The steamfitters of the Province of Ontario have, for the last five years, done everything in their power to have the bona fide steamfitters licensed by the Ontario Government (including our new Government now in power in Ontario.) It appears to me, however, that they would rather pass a law to prevent disease among bumble bees than pass a law that should have been on the statute books twenty - five years ago. There are close on two thousand bona fide steamfitters in this province whom I represent and our request for the licensing for both master and man is endorsed by the Master Steamfitters, and all the fire chiefs, accident insurance companies and everyone else who has any common sense at all. We were not asking the Government to expend one cent on our behalf because it is more than self-sustaining, after all our expenses were paid providing for three high-pressure steam inspectors the revenue from the license fees, fifteen dollars for the masters' license and five from the journeymen steamfitters. We return to the Government about twenty thousand dollars revenue so you can see that our request was reasonable and our only desire was to protect human life, which we consider was our duty. There are a great number of incompetent men who call themselves steamfitters, whom many of our manufacturers are ready to employ because they are cheap. It would surprise the public to know that thousands of girls in factories in Ontario are practically working over volcanoes. What is needed in the province is first-class steam inspectors who know their business and who have served not less than seven years at the trade. I have a list of steam explosions on my desk that would make your hair stand on end which have all been placed before our humble government, but to no avail. This, Mr. Editor, should be published to show the public that the many steam explosions with such loss of life is in no way the fault of the bona fide steamfitters, but in 99 cases out of 100 it is the result of the incompetent, cheap, would-be mechanic. S. WILLIAMS.

Steamfitters' Ontario Representative.

Advertising Keeps Most Retailers in Business

"One out of every 100 people in the United States earns his living by retailing" (the proportion in Canada is about the same), said Jesse M. Joseph, of Cincinnati, in addressing the retail section of the convention of the Associated Advertising Clubs. "In other words, there are more people in retail selling alone than in any other line of endeavor, except agriculture. Yet, after twenty years roll around, out of every 100 who have embarked in retail storekeeping, less than 5 still have their names over the door.

"The financial agencies show that 15,000 retailers fail each year, and 85 per cent. of them—12,250—did not advertise!

"Yet, the outstandng reason for the failure of more than 50 per cent. of these was over-buying.

"Over-buying means too much 'stick stock.'

"Now, if profits lie in quick turnovers, and failures are avoided by having money in the bank—and ADVERTISING will not only dispose of surplus stock, but also bring in the money to put in the bank—you can see not only the advisability, but also the absolute necessity of advertising.

"Some of you remember when there were practically no mail order houses.

"Some of you remember the time when all the mail order houses put together (and it was less than 10 years ago), did not do 4 per cent. of the retail business.

"How do they stand to-day?

Of the $15,000,000,000 worth of retail business done annually, the mail order houses do $1,500,000,000—10 per cent.

"And how do they do it?

"They ADVERTISE!

"The mail order houses and the department stores who advertise do more than 25 per cent. of all the retail business done in America and their proportion is growing all the time. Yet, altogether they only represent 30,000 of the retail stores in the country—or about 3 per cent.

"That's why I say "Advertising" is that force which puts 'The busy into business' and the 'sing into merchandising'—and takes the 'SIN' out of both.

"There is something in your store that is bigger than the store—bigger than the building—bigger than the merchandise. You will find it mentioned at the very beginning of the 22nd Proverb—

"'A good name is more to be chosen than great riches.'

"Some of you wear 'REGAL' Shoes.

"The Regal Shoe Company estimates its name as being worth $2,500,000.

"Some of you wear 'HART, SCHAFFNER & MARX' Clothes.

"It is a 'little thing to look for, but a big thing to find' that little fellow sitting on horseback, blowing a horn.

"Do you know what tune he is playing?

"He is playing $15,000,000.

"Some of you wear 'ARROW' Collars.

"Cluett, Peabody & Company estimate their good name as being worth $18,000,000.

"Some of you smoke 'LIGGET & MEYERS' Tobacco.

"Their good name is worth $39,000,000.

"Others may smoke 'AMERICAN' Tobacco products.

"Their good name is worth $54,099,430.

"F. W. Woolworth & Company, ten-cent stores, figure their good-will at $50,000,000.

"What is your good name worth?

"How do you stand in your community?

"The point I wish to make is this—

"Instead of shrieking 'SALES—SALES—SALES'—instead of eternally pounding on your merchandise and lauding your values—devote a little space to calling attention to your store; to your name; to your policies—you will be building infinitely more permanence to your establishment and its standing in the community.

"You would be less apt to fall among those 95 out of every 100 who go out of business inside of 20 years."

Heating and Ventilating

Manufacture of Cast Iron, Wrought Iron, Steel

Iron Ore Found in Practically Every Part of the World—Smelting Processes—Blast Furnaces—The Bessemer Process

(Written for Sanitary Engineer by N. A. KEARNS.)

BECAUSE cast-iron, wrought-iron, and steel are used to such a great extent in the activities of the sanitary and heating trades, we feel that an article describing the processes of manufacturing such materials will be appreciated by our readers.

Before attempting to describe the different methods used in manufacturing iron and steel, we must first refer to the ore from which the iron is extracted.

Iron ore is found in practically every part of the world; but all iron ore is not of equal value, and it is for this reason—together with the fact that mines of iron ore are frequently far from coal deposits—that iron ore is not extensively mined in certain places when it is known to exist.

The ores that are richest in iron are magnetite and haematite. These ores average from 50 to 55 per cent. Iron carbonates average from 30 to 35 per cent., and generally contain a large proportion of impurities, such as clay and sand. However, it is usually this class of ore that is found close to deposits of coal and of limestone.

The chemical combinations in which the metal occurs are:—(1) Carbon and oxygen, i.e., carbonates of iron; such as may be found in proximity to the coal mines of Western Pennsylvania and England. (2) Oxygen, o.e. Oxides of iron; such as magnetite and haematite. (3) A large proportion of sulphur, i.e; Iron pyrites, sometimes called "Fools Gold" Iron pyrites sulphur, is useless to the smelter.

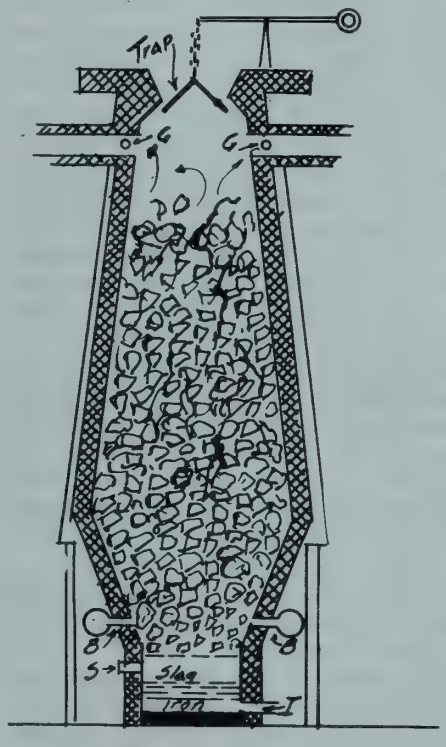
The oxide group of ores are found in the most extensive deposits. This ore is found in its greatest purity in Sweden. A great oxide deposit extends across the Lake Superior region of Minnesota, Wisconsin, and Northern Michigan.

Pittsburg is the great meeting place of the iron ore, from the Lake Superior region, and of the coke from Connelsville. It is at this meeting place that millions of tons of the Lake Superior ore is smelted annually.

The Smelting

In the infancy of the industry, the ore and fuel were merely piled together in a confined space, and reliance was placed on natural draft to force the fire enough to cause the iron to melt and run to the bottom of the furnace. The iron was then gathered, reheated and pounded until the impurities were forced out.

As the industry grew, special furnaces of large dimensions were built; the forced draft was employed and the system of using limestones and other "fluxes" was employed. The fluxes, under heat, combine with the greater portion of the impurities of the ore.



BLAST FURNACE

Cast Iron

The iron obtained from the ore in its passage through the blast furnace, is CAST IRON. This is the raw material from which all kinds of iron and steel are made.

It is the proportions of the various impurities that affect the character of the iron. Phosphorus prevents cold forging. Sulphus makes the iron brittle when heated to redness.

An average analysis of cast iron is:

Iron	93.71	per cent.
Carbon	2.99	" "
Silicon	1.63	" "
Sulphur	.09	" "
Phosphorus	1.17	" "
Manganese	.39	" "

Cast iron is useful for heavy castings and for work of an ornamental character; but it cannot be useful where the material is to resist any considerable pulling or bending force.

Blast Furnaces

The blast furnace generally consists of a circular shaft or chamber similar to that illustrated by the accompanying cut.

The cut shows the furnace in section. These furnaces are constructed in fire brick of great heat resisting qualities, built in masonry with an outer covering of iron plate.

The operation of the furnace is about as follows: The hearth is first partly filled with wood, and then coke up to the level of the wide part of the furnace. The wood is set on fire, and when the coke starts glowing a small amount of ore and limestone is added. The blast then is turned on by way of the pipes and nozzles, marked "B" on the drawings. More ore and flux is then added until the shaft is filled almost to the top. In about seven days the blast will reach its working heat, and is then kept continuously in operation for years.

During the smelting the carbon of the coke and the oxygen of the air unite to form carbonic oxide, which robs the iron oxide of its oxygen, thus forming carbonic acid gas which escapes by way of the vents, marked G on the drawing. The clay silica, etc., unite with the lime from the limestone and forms slag.

This iron and slag run down to the lower part of the furnace. The slag floats on top of the iron and is removed, at periods, through the opening marked S on the drawing. The iron is tapped by way of the opening marked I.

The iron in passing through the hot fuel and ore takes up 3 to 4 per cent. carbon; about the same amount of silicon; some maganese and sulphur and nearly all of the phosphorus that occurs in the materials.

The iron that comes from the blast furnace is in its crudest state of cast iron.

All of the impurities could be removed; but the pure cast iron would be of little use, as it is to crystaline in texture.

Wrought Iron

Wrought iron differs from cast iron in that it contains practically no carbon. It is very malleable; it is difficult to melt, and it cannot be tempered.

Wrought iron is produced by a process called "puddling," followed by rolling.

The furnace used in the puddling of iron is of a special type consisting of two main parts, viz: the furnace and the hearth. The furnace is separated from the hearth by a low fire wall. The hearth lies between the flue and the furnace. The bottom of the hearth is formed of an iron plate.

When the hearth is brought to a high temperature, pig-iron and scrap wrought iron is fed to the hearth by way of a charging door set at one side of the hearth.

The flames from the furnace are beaten down by the roof over the hearth. In about a quarter of an hour after the metal has been subjected to this treatment it begins to soften. The puddler then inserts a long bar, with a flattened end, through the stopper hole, and moves the lumps of pig to the centre of the hearth.

While the metal melts, the oxygen of the air coming in with the flames, combines with the iron and forms ferrous oxide. The oxygen also combines with the silicon. These two combinations form slag. The carbon of the pig iron unites with the oxygen and escapes as carbon monoxide gas.

When the carbon monoxide is escaping, the liquid iron boils, and then the puddler inserts an iron bar, which is frequently withdrawn and cooled in a bath of cold water. He keeps moving the tool around until the boiling becomes less violent as the carbon diminishes.

The carbon passes off, and the silicon unites with the oxygen and forms a slag. Most of the iron then comes together in masses projecting out of the slag. The phosphorus of the pig unites with the slag; the sulphur combines with the oxygen and escapes as a gas.

The iron is then separated from the slag by the following processes:—

The puddler first stirs up the bath so that it is brought to a uniform heat. He works the bar so that the iron particles are rolled into a spherical mass. When he has a mass of about 100 pounds he places it close up to the fire wall, and proceeds with the forming of similar balls.

When the entire charge is "balled-up," the puddling door is closed, and the heat increased to melt as much of the slag as possible out of the iron. The door is then opened, and the balls taken from the hearth to a steam hammer, which pounds the remaining slag out of the iron.

The steam hammer beats the sponge-like ball of iron into a compact bar, or "bloom." The bloom is reheated and hammered again; then heated and passed through a rolling mill and drawn out into a bar. The bar is afterwards cut into short pieces which are heated and re-rolled. This process is repeated until all of the slag is removed.

Steel

Iron combined with a small amount of carbon is called steel. Steel combines the malleable properties of wrought iron and the hardness of cast iron. It can be cast and forged into any shape, and tempered to extreme hardness.

Steel differs from cast iron in that it contains little impurity and less carbon. It differs from wrought-iron in that that it contains some carbon.

Steel is made from pure wrought-iron to which carbon is added by either the cementation or crucible process. If the carbon is added when the iron is heated, the process is called "cementation." If the carbon is added when the iron is melted, the process is known as the "crucible."

The more commercially important process are when the pig-iron is used. In the "Bessemer" process all of the carbon is first removed, and then the required amount of carbon added; in the "open-hearth" system, part of the carbon is removed and the required amount added.

The Bessemer Process

In the Bessemer process, the "converter" is first brought to a red heat by being filled with burning coke. When the iron is ready to be run into the converter, the converter is turned upside down and empties out the coke. The converter then turns back in position and the molten metal is run through sand-lined gutters into the converter. The mouth of the converter is pointed up the chimney, and the blast turned on.

A pale yellow flame issues for about five minutes, while the oxygen of the blast combines with the manganese and silicon and forms slag and begins to affect the carbon. Then the flames become very bright. If the metal becomes too hot, cold iron or scrap is thrown in. The flames change from white to pale blue. Then all at once the flames change back to white. It is then time to "carbonize" and pour.

The carbonizing is effected by pouring in a liquid mixture of iron, maganese and carbon weighing about one-tenth of the original charge.

The charge is poured from the converter into a ladle. The ladle is then swung around over the moulds and the plug lever of the ladle is lifted. The white-hot steel fills the mould, and then the mould is covered with a piece of sheet iron to exclude the air. After the mould has set, it is placed in a re-heating pit, where the heat of the centre spreads to the surface, already partly cooled by the mould.

The Open-Hearth Process

In this process pig-iron is melted in a furnace with a hearth constructed on something of the same principle as the hearth in a puddling furnace. Steel scrap is added to dilute the carbon in the castiron. While the heating is carried on, ferric-oxide is added until the carbon is nearly all burned; the phosphorus and silicon oxidized to slag, and the sulphur driven off. Then the mixture of iron, carbon and manganese is added and the metal run off.

The Acid and Basic Processes

When using the Bessemer or Open-Hearth systems, it is difficult to expel the phosphorus from pig-iron. At a high temperature the phosphorus loses its hold on the slag and re-enters the iron.

The lining of the converter in the original Bessemer and open-hearth methods was a ganister of acide-oxide.

In the acid process. the silicon of the ganister prevents the phosphorus entering the slag.

In the basic process the converter, or hearth, is lined with basic materials, such as limestone and magnesia. In this process the phosphorus acid combines with the lime to make a stable slag. This slag when ground up makes a good fertilizer for gardens on account of the amount of phosphorus in contains.

Carbon

In cast iron:—3 per cent. and more.
In "High" steel:—1 to 1.5 per cent.
In "Madium" steel:—.3 to .7 per cent.
In "Low" steel:—.3 per cent. and less.
In wrought iron:—Hardly any.

Alloy Steel

Nickel steel, used for armor plates and shafts, etc., contain from 3 to 3½ per cent. of nickel and .25 per cent. carbon. Will not crack; does not break easily.

Maganese steel, used in the construction of safes, rock crushers, etc., is very hard. It cannot be softened by heat. Contains 12 per cent. of maganese and 1½ per cent. of carbon.

Tungsten steel contains 1 to 2 per cent. of carbon, and 5 to 10 per cent. tungsten. It is used for metal cutting tools and for magnets. It does not become soft with heat and will remain magnetized for a long time.

Chrome steel, used for safes, and for armor piercing shells, etc., is very hard and elastic. It contains .8 to 2 per cent. of carbon and about 2 per per cent of chromium.

In an article of this length we can not enter into the history of the iron industry; nor can we describe in any detail the method whereby the hot gases of the blast furnace are used in the blower engines, and for the heating of the air for the blast.

We believe that that the information that is given in this article will assist the reader to a valuation of how much skill and effort is used in the making of iron and steel. We believe, also, that certain terms, appearing in the specifications of steel and iron, will have a vital meaning to the reader who has some understanding of how the materials are made.

THE QUESTION BOX

Connections For Additional Radiation

AN Ontario subscriber writes that he has a customer who has a large hot air furnace with a 30-gal. boiler alongside. The coil is well up in the firebox and the feed comes out of the top and connects to a tee in the top of the boiler. The customer wishes to put in 30 square feet of radiation in a sunroom 35 feet away.

"As the boiler boils, sometimes by getting too hot, I would like to know how best to make the connections from the radiators to the return and flow from the coil in the furnace. If the return needs to be trapped, etc."

ANSWER

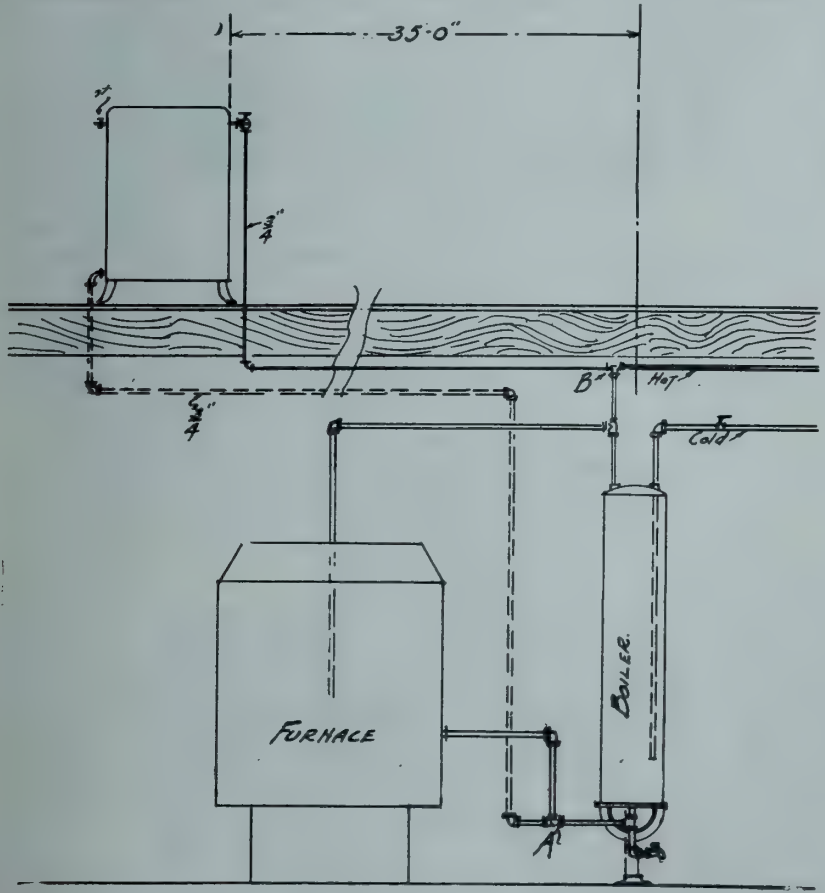
The accompanying drawing indicates how the feed and return piping of the proposed radiator may be connected to the piping of the present domestic hot-water service.

The double dotted line shows the return piping of the radiator. This pipe should be connected to the bottom of the boiler by way of the tee marked A. This tee is to replace the elbow now in place.

The feed pipe to the radiator is indicated by a single heavy line. The connection of this pipe to the domestic hot-water supply is to be made with the tee marked B, which tee is to replace the present elbow. It will be noted that the branch to the radiator is taken out of the end of the tee, and not out of the top. If the connections is made out of the top of the tee, the radiator is likely to get a very rapid circulation of water at the expense of the hot water service to the fixtures. However, if the heating of the radiator is of more importance than is the water service to the fixtures, the tee marked B should be so turned that the feed to the radiator will come directly off the top of the hot water supply.

A valve is shown at the feed end of the radiator. The valve could be placed on the return instead, without in any way interfering with its function of controlling the circulation of water through the radiator.

There need be no valves or traps installed other than those shown on the drawing.



The above drawing indicates how the feed and return piping of the proposed radiator may be connected

Standardized Septic Tank

Dear Sir:—Can you furnish me with the following information:

Is there a standardized cement spetic tank for house plumbing purposes for rural districts close to cities in Ontario and endorsed by the Ontario Board of Health? If so, where can I get a plan of such tank and connections? I have some idea of building a residence this summer and it will be beyond the drainage area of the city, and I want to have a good permanent septic tank made for use.

About six to eight persons in family and ordering bath room fixtures and waste traps.

M. A. BRAIN.
47 Sandwich St. West.
Windsor, Ont.

ANSWER

The type of septic tank being recommended by the Provincial Board of Health of Ontario is as illustrated herewith. Of this tank the official bulletin on sewage disposal states as follows:

A tank such as shown here is usually placed near the residence and is ventilated by a pipe carried up above the roof from a point between the last trap in the house drain and the tank. There should be no depression in the drain pipe between this point and the tank. In exposed places the breather or ventilating pipe had best be stopped up during the winter months. A heavy draught frequently causes the surface of the liquid in the tank to freeze.

The sewage from a residence having modern plumbing consists of diluted fæcal matter and urine, bath water and wash water from laundry, kitchen sink, etc. Fresh sewage has very little odour, but, if allowed to stand, it rapidly decomposes and may become offensive inside of 24 hours; hence, any tank arrangement holding sewage for more than 24 hours requires ventilation. This, it will be noticed, has been provided for in the design Fig. No. 4. It is customary to ventilate the pipe feeding the sewage to the tank between the last trap and the tank in order that the main riser in the buildings may be taken advantage of without entailing extra expense. Most plumbing by-law require that these risers be taken up above the highest windows so that the gases discharge on a level with or above the roof.

The sewage upon decomposition forms ammonia, amino acids, carbon compounds and harmless mineral matter.

The use of chemicals such as chloride of lime or copperas, if in small quantities, will usually disinfect sewage but rarely prevents its decay and subsequent disintegration; it may, however, delay decomposition. Frequently where sewage has been disinfected and discharged into a small stream this decomposition takes place very much lower down the stream and may cause considerable nuisance to localities somewhat remote from the point of introduction.

The Soil Absorbs Sewage

The method of disposing of wastes by means of tile is one which takes advantage of conditions existing in the soil which brings about a speedy purification of sewage by a process of oxidation. In order that such treatment be successful these conditions should be as nearly ideal as possible. Myriads of tiny bacteria exists in the upper portion of the soil and these attack the organic matter usually in colloidal suspension in the sewage and change it by well determined oxidizing processes into compounds which finally become quite stable and whose presence in the liquid sewage does not give rise to odor or any marked turbidity. In order that these soil bacteria (nitrifying bacteria they are sometimes called) may work to the best advantage, it is advisable to apply the sewage intermittently to the purification area. If the sewage is applied too generously the bacteria which require oxygen literally suffocate and the oxidation process is stopped. Such interruption of the oxidation process may allow the soil to become clogged with grease and unfermented organic matter which rapidly fills the pores of the soil. Once an area has become seriously waterlogged there is no option but to take steps to underdrain it.

In order to relieve the bed from handling large particles of grease, fæcal matter, etc., it is advisable to construct a settling tank where such particles by process of digestion become disintegrated and pass away into some of the simpler compounds. For convenience Fig. 4 has been arranged so that the number of persons has been given for the various sizes of tank.

A tank such as this is best constructed of concrete under the supervision of some local contractor who is experienced in the use of this material. The forms are quite simply made and require no special knowledge. Care should be taken, however, to have the forms made so that they can be easily removed from the interior of the tank after the work has been completed. As a rule, the forms shrink away from the concrete after it has been allowed to dry for several days. No forms should be removed until after the third day.

The concrete had probably best be made up of one part of Portland or Hydraulic cement to two parts of sand and four parts of gravel or broken stone. If gravel is used the finer material should be removed by screening, or else the quantity of sand changed so as to make the mixture of one part of cement with six parts of the sand and gravel aggregate. The broken stone should pass through a 1 inch ring.

If the mixing is by hand it should be done on a large water-tight platform and care should be exercised to prevent loss of grout. The mixing should be thorough and continued until every particle of the gravel or broken stone is covered with mortar. The sand and cement is first mixed dry; the broken stone may be wet or the whole may be mixed dry and then water added. Care should be taken not to make too wet or mushy concrete.

The concrete should be placed in the form in layers of about six inches in thickness at a time. It should then be well tamped and spaded next to the form in order to get rid of any air which may be trapped in the concrete and to obtain a good surface when the forms are removed. Concrete work of this character should be so done that when the forms removed and the surface brushed over a smooth surface will be presented.

The tanks may be made somewhat smaller than the dimensions given in Fig. No. 4, but it will generally be found advisable to use the dimensions there given.

In such a tank two processes occur:

(1) Considerable mechanical action takes place, the heavier particles settling and the grease and lighter particles in the sewage rising to the top. It will be noted that the overbow is arranged to take clear liquid from about 12 inches below water level in the tank.

(2) Large numbers of bacteria multiply in the liquid particularly in the particles which separate out by falling to the bottom or rising to the top, and these bacteria disintegrate and emulsify the particles of organic matter present.

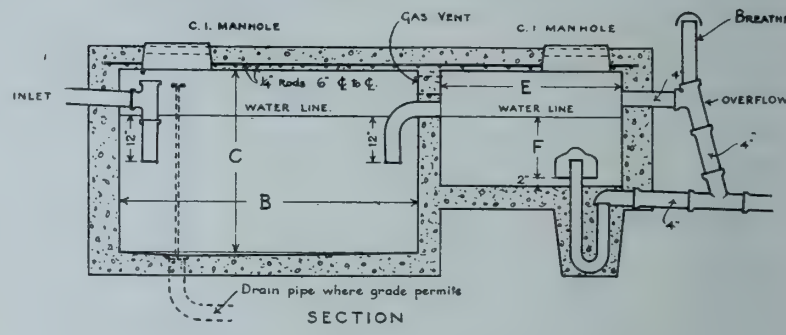
The following analyse show that filtered sewage before and after retention is somewhat of the same composition probably due to the fact that the organic substances arise from the presence of particles in suspension and that septic action for short periods is more disintegration than emulsification.

Effect of Septic Action

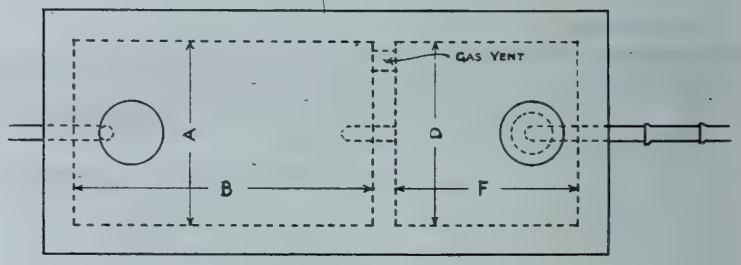
Original raw sample.—Free ammonia, 26.6; albuminoid ammonia, 7.3; oxygen consumed, 32.

Continued on page 33

SEPTIC TANK AND SYPHON



SECTION



PLAN

GENERAL DIMENSIONS

NUMBER OF PERSONS	SETTLING CHAMBER			SYPHON CHAMBER			SYPHON DIAMETER
	WIDTH INSIDE A	LENGTH INSIDE B	DEPTH C	WIDTH INSIDE D	LENGTH INSIDE E	MINIMUM DEPTH F	
	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Ft. In.	Inches.
5	4'-0"	6'-0"	4'-6"	4'-0"	4'-0"	1'-3"	3
7	4'-0"	6'-0"	5'-0"	4'-0"	5'-0"	1'-3"	3
11	5'-0"	6'-0"	5'-0"	5'-0"	7'-0"	1'-3"	3
20	6'-0"	10'-0"	5'-0"	6'-0"	10'-0"	1'-3"	3
50	10'-0"	15'-0"	8'-0"	10'-0"	12'-0"	1'-11"	5

Size of syphon chamber may be decreased when F is increased.

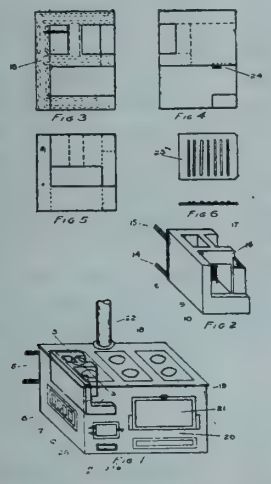
NEW CANADIAN PATENTS

(Issued for Plumbing and Heating Goods)

NO. 200,586. HOT WATER HEATER AND KITCHEN RANGE

George J. Rymal, Denver, Colorado, U.S.A

The combination of the firebox and grate of a stove, of a hollow water circulating unit forming the vertical wall of the firebox, said hollow water circulating unit resting upon the grate of the firebox, the opposite side walls of the water circulating unit being connected by a transverse hollow member spaced above the grate of the firebox and forming a



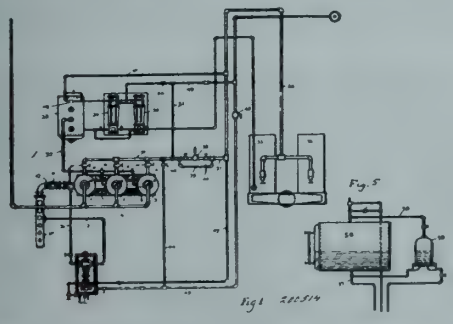
relatively small compartment between said transverse hollow member and the forward end of the water circulating unit, an iron slide to fit in slot on transverse member to form a relatively small firebox for the single purpose of cooking.

The combination of a firebox and the grate of a stove, of a hollow water circulating unit forming the vertical walls of the firebox, said water circulating unit having a transverse hollow member connecting two opposite side walls of the water circulating unit, and a second hollow member connecting said transverse hollow member with one of the end walls of the water circulating unit, said transverse hollow member and said second hollow member being spaced above the grate of the stove band, said members forming relatively small compartments with respect to the area of the firebox, and adapted to receive a slide for the single purpose of cooking.

NO. 200,514. HEATING SYSTEM

Telesphore Latourelle, Montreal, Quebec, Canada.

In a heating system a steam generating plant, a steam water heater connected to said plant, a distributing header connected to the radiating system, a return header connected to the radiating system, a main header connected to said re-



turn header, and means for sucking the water from said main header and returning it to said heater.

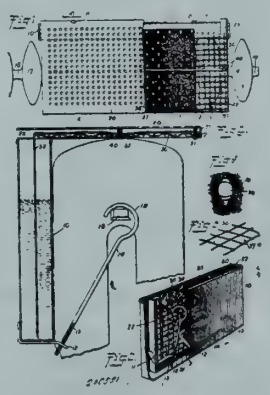
In a heating system a steam generating plant, a plurality of steam water heaters grouped with said plant, a steam pipe having a branch therefrom connected to said heaters, and a reducing valve in said branch, a condensation tank connected to said heaters and to said steam plant, steam pumps returning the condensates to the boiler and having their exhaust connected to said heaters and automatically cut off from their steam supply, a plurality of radiating pipes connected with said steam water heaters, a steam turbine pump accel ating the flow of return water from said radiating system to said heaters and having its exhaust connected with said heaters and driven from said steam plant, and an elevated tank for replenishing the water in said radiating system.

In a heating system, a plurality of heating units comprising steam water heaters for receiving and delivering the water to piping and radiators in corresponding units of space respectively, and a steam generator in the lowermost unit of space connected to said pumps and also to the steam water heaters through reducing valves and receiving the condensate from said pumps and heaters.

NO. 200,551. HUMIDIFIER.

Dorr Franklin Loudon, New York City.

A humidifier for use on radiators comprising an open top water receptacle, adjustable means for supporting the said receptacle on the back of a radiator, the top of the receptacle being approximately flush with the top of the radiator, a perforate plate provided at the under side of the front and sides with supporting flanges, of which the rear ends of the side supporting flanges rest on the top of the said receptacle, the said side supporting flanges resting approximately at their middle on the top of the radiator, a foraminous support resting on the said supporting flanges, and a piece of absorbent material, the front portion of which is held on top of the said foraminous support and the rear portion hangs



down from the rear end of the said support and extends into water contained in the said receptacle.

A humidifier for use on radiators comprising an open top water receptacle, adjustable means for supporting the said receptacle on the back of a radiator, the top of the receptacle being approximately flush with the top of the radiator, a perforate plate provided at the under side of the front and sides with supporting flanges, of which the rear ends of the side supporting flanges rest on the top of the said receptacle, the said side supporting flanges resting approximately at their middle on the top of the radiator, a foraminous support resting on the said supporting flanges, a piece of absorbent material, the front of which is held on top of the said foraminous support and the rear portion hangs down from the rear end of the said support and extends into the water contained in the said receptacle, and spacing means interposed between the front portion of the said absorbent material and the said plate.

(Continued on next page.)

Look to Canada as Source of Supply

Rapid Recovery of British Industry—Require Many Raw and Manufactured Products From Canada at Present Time—European Countries Already Exporting Supplies

THAT Great Britain will recover rapidly, and that she is already considerably recovered from the inaction, industrially, which has characterized the situation there for a long while, is the conviction of H. P. Goodman, of H. L. Goodman & Son, importers and exporters, London, England. To SANITARY ENGINEER Mr. Goodman expressed some interesting views on the situation over there, views which hold interest for Canadian manufacturers and jobbers in that Canada is being looked to as a source of supply for many products that are greatly needed at the present time. Mr. Goodman arrived from Great Britain a few days ago and is in quest of raw and manufactured hardware lines, which will find a ready sale in the Old Country.

Early Action Important

It is very important, according to Mr. Goodman, that manufacturers having raw materials or manufactured products to sell, offer them promptly. European countries are rapidly recovering from the stress and destruction wrought by the war. Already such countries as Belgium and France, and also Germany, have been shipping supplies into Great Britain, and, while oftimes such quantities are quite limited, as related to the demand, it is patent that these countries are making a strong bid for business connections that they expect will become permanent. Herein, therefore, rests the necessity of the Canadian producer and manufacturer getting in on the ground floor, for it is now, while the British buyer is urgently in need of commodities, that he will be impressed with the advantages possessed in goods that he receives. Later, when there will be "enough and to spare," buyers will have satisfied themselves with the sources from which they have bought, and it will be more difficult to pull business. The next few months will, indeed, work big for the man who gets in now on the ground floor.

Of course it is quite as difficult for one manufacturer to get supplies as for another. World-wide conditions are unique in that shortages are evident and exist everywhere. But the very fact that some European countries are even depriving their own markets of manufactured goods in order that old connections abroad may be revived or maintained, speaks a lesson in itself.

Some Lines in Demand

Asked as to what classes of goods were wanted in Great Britain, Mr. Goodman stated that, among hardware lines, various wire products stand out prominently as essentials at this time. Barbed wire, plain and plain twist galvanized wire, hardware specialties, cutlery, tools, axes, picks, plow and other bolts, nuts, etc., are wanted in immense quantities, and if available now will command good prices and quick sale.

There has been a real change in the attitude of the consumer, and modern electrical appliances, washing machines, cream separators, and many other manufactured goods are so much needed that there is, and will be for some time, no difficulty in disposing of almost any extensive quantities that can be sent forward. Even steel tubes, pipe and plumbing goods would be welcomed, and it is not so much a matter of price just now, Mr. Goodman states, as of delivery. Competition will, in time, be keener than it now is, but with all production costs higher everywhere Canada has a good opportunity of selling any and all of these lines.

Building materials such as Portland cement are much needed and will sell freely.

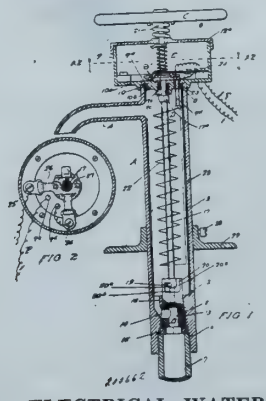
Canadians Can Buy

Either through established connections already made, or through the appointment of agents, Canadian firms will be able to procure, within a reasonably short time, products in England and on the Continent. This exchange of goods will come rapidly, and Mr. Goodman states that he has been informed that all outbound shipping is able to return to the Old Country with full cargoes. This has been gratifying, of course, to the shipping interests, but it is interesting as well as gratifying to note that export tonnage keeps pace with that of import tonnage.

England has had no end of difficulty in the matter of production owing to labor difficulties. At the same time, Mr. Goodman asserts that Great Britain's recovery to a normal, or a nearer normal basis, will be very rapid, much more rapid than is anticipated in some circles.

(Continued from page 31.)

A humidifier comprising a receptacle open at the top and adapted to contain water, adjustable brackets adapted to support the said receptacle on a radiator, a perforate plate adapted to rest on the top of the radiator and on the top of the said receptacle, a foraminous support mounted on the under side of the said plate, and a piece of absorbent material having a portion stretched over the said support below the plate and having another portion extending into the said receptacle.



NO. 200,662. ELECTRICAL WATER HEATER.

Howard Kingsley Clover, assignor, and Henry Percival Oates, assignee of a half interest, and Charles Huffman Beggs, assignee of a half interest, all of Los Angeles, California, U.S.A.

In an electric heater, a casing having a discharge opening, a valve to control the flow of fluid through said casing, means for operating said valve, electric heating means in said casing, and means to control the supply of electrical energy to said heating means, said heating means being adapted for inter-engagement with said valve operating means whereby said heating means may be removed from the casing upon removal of the valve operating means therefrom.

In a heater for fluids, a casing adapted to permit the passage of fluid therethrough and having a discharge opening, a valve seated in the casing at one end thereof, a rotatable valve operating stem, an electrical resistance element in said casing and in position to be traversed by fluid, means for supplying electrical energy to said resistance element, and controlling means for the electrical energy so supplied, said resistance element being removable with said valve operating stem.

In a heater for fluids, a casing adapted to permit the passage of fluid therethrough, a rotatable valve seated in said casing, a valve stem extending through said casing and provided externally thereof with operating means, an electrical resistance element in said casing and in position to be traversed by fluid, means for supplying electrical energy to said resistance element, means for controlling the supply of electrical energy to said resistance element, and means for supporting said resistance element in position in said casing, said valve stem being provided with means adapted to be engaged with said resistance element supporting means and said stem being provided with means whereby said valve may be detachably engaged by said stem, there being yielding means whereby said detachable means are held in engagement.

Statistics Show Large Building Increase

Substantial Increase for May Over Last Year—High Costs Still Interfering to Some Extent—Western Cities Show Construction on Large Scale

WHILE building totals for the month of May for the Dominion show a large increase over the returns for the corresponding month a year ago, there is a decided decline from the total for the month of April of the present year. The returns show a total for May of $13,953,698, as compared with $7,515,482 for May, 1919, and $16,088,649 for April of the present year. While the returns indicate that the building in progress is much greater than last year, the decline from the previous month is somewhat of a disappointment. An explanation may be found in the high costs of material, which at present are not abating. Many contracts have been cancelled or held over to await the return of more favorable conditions.

The returns for the twenty-seven cities of the East reveal a total of $9,325,443, as against $6,164,093 last year. The increased activity is more noticeable in the West where, in the case of the fourteen cities, the total value of permits issued last month was $4,628,225, as against $1,351,389 last year. There has been a remarkable increase for the first five months of the year, the total standing at $46,225,994, as compared with $20,858,970 last year, or an increase of $25,367,024. The city of Toronto has been re-established in the premier place, insofar as the total of building permits issued is concerned, the total standing at $3,133,605. The city of Weyburn, Sask., is the nearest competitor with a total of $2,235,858. This amount is, however, largely made up by a permit for the erection of a mental hospital to the value of $2,207,708. The value of permits issued in Montreal totalled $1,665,658, as against $1,269,438 last year.

Building operations are being conducted on a large scale in some of the Western cities. The total for Winnipeg is $531,400 for Calgary, $436,500, and for Edmonton, $426,075. A few cities show a decline in the permits for the past month as compared with a year ago. In Brantford there is a decline of $145,335. Sydney, N.S., is also behind last year's record by $32,692.

BUILDING PERMITS ISSUED IN MAY

Eastern Cities.

Maritimes—	May, 1920	May, 1919	Change	5 Mos. 1920	5 Mos. 1919	Change
Halifax	$ 421,845	$ 403,190	+ $ 28,655	$ 1,474,885	$ 1,411,246	+ $ 63,639
Moncton	120,005	114,516	+ 5,489	370,720	930,166	— 559,446
St. John	28,200	44,200	— 16,000	300,350	80,200	+ 220,150
Sydney	106,962	139,654	— 32,692	240,907	254,524	— 13,617
Quebec—						
Montreal	1,665,658	1,269,435	+ 396,223	6,083,309	2,156,007	+ 3,927,302
Quebec	334,900	182,463	+ 152,437	1,252,464	622,780	+ 629,684
Sherbrooke	102,430	136,850	— 34,420	1,465,405	379,950	+ 1,085,455
Westmount	228,675	60,325	+ 168,350	505,890	133,179	+ 372,711
Ontario—						
Brantford	94,450	239,785	— 145,335	432,690	398,870	+ 33,820
Chatham	55,610	12,620	+ 42,990	220,429	26,210	+ 194,219
Fort William	90,745	186,900	— 96,155	164,780	200,675	— 35,895
Hamilton	521,250	318,310	+ 202,940	1,956,300	1,394,880	+ 561,420
Galt	56,955	24,400	+ 32,555	138,230	100,245	+ 37,985
Peterborough	6,605	4,330	— 2,725	153,315	51,650	+ 101,665
Kingston	42,465	40,380	+ 2,085	274,965	267,089	+ 7,876
Kitchener	58,345	66,125	— 7,780	560,005	275,450	+ 284,555
London	266,685	129,575	+ 137,110	650,765	384,420	+ 266,345
Ottawa	549,490	388,927	+ 160,563	1,123,075	803,237	+ 319,838
Port Arthur	18,055	32,360	— 14,305	44,031	76,998	— 32,967
St. Catharines	46,467	82,282	— 35,815	256,222	224,704	+ 31,518
St. Thomas	26,340	18,355	+ 7,985	64,095	108,905	— 44,810
Stratford	59,388	53,800	+ 5,588	200,841	73,138	+ 127,703
Toronto	3,133,605	1,455,734	+ 1,677,871	10,266,358	4,983,950	+ 5,282,408
Welland	112,425	19,840	+ 92,585	167,790	136,120	+ 31,670
Windsor	441,825	179,290	+ 262,535	2,692,675	485,055	+ 2,207,620
Woodstock	75,363	27,247	+ 48,116	138,391	41,628	+ 96,763
York Township	650,700	528,200	+ 122,500	1,851,000	1,209,725	+ 641,275
Total 27 E. Cities	$ 9,325,443	$6,164,093	+ $3,161,350	$33,049,887	$17,211,001	+ $15,838,886

Western Cities

Alberta—						
Calgary	$ 436,500	$ 472,000	— $ 35,500	$ 1,245,500	$ 1,075,900	+ $ 169,600
Edmonton	426,075	54,500	+ 371,525	1,396,775	128,775	+ 1,268,000
Lethbridge	28,410	2,620	+ 25,790	62,890	49,070	+ 13,820
Manitoba—						
Brandon	14,970	372	+ 14,598	29,403	30,547	— 1,144
St. Boniface	32,985	3,170	+ 29,815	119,025	36,320	+ 82,705
Winnipeg	531,400	73,400	+ 458,000	4,199,000	475,750	+ 3,723,250
Saskatchewan—						
Moose Jaw	149,630	126,770	— 22,860	417,985	200,910	+ 217,075
Regina	324,675	178,880	+ 145,795	1,273,650	453,760	+ 819,890
Saskatoon	95,950	95,990	— 40	205,200	266,875	— 61,675
Weyburn	2,235,858	500	+ 2,235,358	2,257,308	3,070	+ 2,254,238
Yorkton	50,400	8,375	+ 42,025	63,850	9,095	+ 54,755
British Columbia—						
N. Westminster	24,050	11,175	+ 12,875	184,365	63,150	+ 121,215
Vancouver	226,467	202,690	+ 23,777	1,388,645	672,550	+ 716,095
Victoria	50,885	120,897	— 70,012	332,511	182,197	+ 150,314
Total 14 W. Cities	$ 4,628,255	$1,351,389	+ $3,276,866	$13,176,107	$ 3,647,969	+ $ 9,528,138
Gr. total, 41 cities	$13,953,698	$7,515,482	+ $6,438,216	$46,225,994	$20,858,970	+ $25,367,024

Electrical Convention in Vancouver

Vancouver, B.C.—A very successful convention of electrical dealers was concluded, at which every province in the Dominion was represented. A substantial representation from the United States was also on hand. The programme embraced a comprehensive list of subjects interesting to the general public as well as to the electrical experts in attendance. The convention was called under the auspices of the Vancouver Association of Electrical Contractors and Dealers, which is the only electrical organization in Western Canada. Addresses were given by Wm. McNeill, assistant general manager of the Western Power Company of Canada; O. H. Caldwell, editor of "Electrical Merchandising"; F. T. Cope; H. B. Kirkland, general manager of the American Conduit Co.; M Pike, general sales manager of the Northern Electric Co., Montreal; George Kidd, general manager of the B. C. Electric Railway Company; S. A. Chase, of the Westinghouse Electric & Manufacturing Co.

STANDARDIZED SEPTIC TANK

Continued from page 30

Same, filtered.—Free ammonia, 25.8; albuminoid ammonia, 2.7; oxygen consumed, 15.1.

Same, held for 32 hours, then filtered. —Free ammonia, 25.8; albuminoid ammonia, 2.6; oxygen consumed, 7.5.

The syphon which is usually placed in the second compartment is for the purpose of emitting sewage in certain fixed doses to the absorption tile. This compartment is frequently called the dosing chamber.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

PRICES are very firm for nearly all kinds of sanitary and plumbing supplies, and many lines have a n upward price tendency. The famine for flat sheets is a great handicap to all concerned and prospects for future delivery are not very bright. The Eastern markets are practically bare of supplies of soil pipe, and range boilers are also hard to procure. Certain sizes of wrought pipe are becoming very scarce. Enamelledware is enjoying a good demand and prices are very firm. A scarcity has also developed for some sizes of boiler tubes. Conductor pipe and eavestrough are moving well, but manufacturers are faced with a probable shortage unless supplies of material come to hand more readily. Gas heaters of some makes are also somewhat hard to secure.

The recent freight transportation difficulties have developed a serious shortage for coal and fuel of various kinds, and some industries have been forced to close down as a result, while others have been greatly handicapped.

Nearly all in the trade are enjoying a very busy period, which compares very favorably with former seasons and a great deal of material is being used, although there are cases where some are held up on account of the difficulty of securing supplies.

Notwithstanding the policy adopted by the financial concerns regarding loans, collections are coming very favorably and those in the trade express themselves as well satisfied with present business.

MONTREAL MARKETS

MONTREAL, June 29.—Market conditions are somewhat favorable in a number of respects; in others they are anything but favorable. Prices, as a general rule, are maintained on a high basis. Radiators, for instance, are very firm, and there is unlikely to be any recession from the basis at present prevailing. There may indeed be advances. Production has been curtailed very materially for sometime, but foundries are again operating. Transportation has been a difficult problem.

Solders, due to a slump in ingot tin, have declined somewhat in price. Old material is easier, due to a accumulation of stock from the country and the limited buying of the mills for melting down. With mills again resuming operations the condition may be improved soon.

Sheets are very scarce and high in price. Iron bars have advanced ten cents a hundred pounds. Cotton waste is firm and supplies are difficult to obtain. Range boilers are firm and supplies somewhat scarce. Wrought iron pipe, above two inches diameter, is scarce. Boiler tubes are almost unobtainable.

The trade is remarkably active for many lines, and altogether the outlook for business is reported excellent. Prospects for obtaining necessary supplies are not so bright, however.

Lead Products Steady; Demand Active

Montreal.

LEAD PRODUCTS.—Plumbers are actively buying various lead products. For some of the bigger work now progressing throughout the country large quantities of goods are needed, and this demand comes from all points. Solders have been lower in sympathy with the recent decline in tin and the somewhat lower basis for lead, comparing the present market with that of several weeks ago. Lead traps and bends, sheets and lead wool have all been ruling steady.

Lead pipe, per 100 lbs.	....	17 00
Lead waste, per 100 lbs.	....	18 00
Note—Lead pipe is subject to a discount of 10%.		
Lead traps and bends	List plus	30%
Lead wool, lb.	....	0 16
Lead sheets, 2½ lbs.	....	0 14
Lead sheets, 3 to 3½ lbs. sq. ft., lb	....	0 13¼
Do., 4 to 8 lbs., sq. ft.	....	0 13
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.		
Solder, guaranteed, lb.	0 40	0 42
Solder, strictly, lb.	....	0 38½
Solder, strictly, commercial	0 35	0 37
Solder, wiping, lb.	0 33	0 35
Zinc sheets, casks	....	0 16½
Do., broken lots	....	0 17

Old Material Easier; Result Limited Buying

Montreal.

OLD MATERIAL.—In view of the fact that many plants have experienced labor difficulties, the old material market has ruled easier of late. This is due as well to the somewhat heavier receipts of supplies from country dealers. Added to the small demands from manufacturers for scrap it has caused a slump in the market, and old scrap material generally has been easing off a great deal. Tea lead and heavy lead are quoted slightly less than formerly.

DEALERS' BUYING PRICES

Pipe scrap	....	16 00
No. 2 busheling	12 50	13 50
Stove plate, per ton	....	27 00
Yellow brass	0 10	0 11
Red brass	0 17	0 18
Light brass	0 08	0 09
Scrap zinc	0 07	0 08
Heavy copper	....	0 18
Wrought iron, No. 1, per gr. ton	....	22 00
Heavy melting steel	....	22 00
Heavy lead	0 06	0 07
Tea lead	....	0 03½

Sheet Basis Nominal; Difficult to Obtain

Montreal.

SHEETS AND PLATES.—Few of those in a position to express the best opinion on the outlook entertain encouragement at the present time for an early improvement in the sheet situation. The demands of every day are so much in themselves that no one can get a surplus ahead, and there is a great

shortage of various gauges. Some expect that there will be little relief, if any, this year, and if there is it will probably not come until the late fall. Prices cannot be quoted to-day that will hold to-morrow, and under this nominal price basis there is bound to be bidding for sheets, when wanted, that will result in this condition continuing.

BLACK SHEETS—	
10 gauge	9 00
12 gauge	9 05
14 gauge	9 10
16 gauge	9 35
18-20 gauge	9 40
22-24 gauge	9 45
26 gauge	9 50
28 gauge	9 50
GALVANIZED SHEETS—	
U.S. Standard—	
10¾ gauge	12 50
28 gauge	12 10
26 gauge	10 75
22 and 24 gauge	11 55
20 gauge	11 55
18 gauge	11 55
16 gauge	10 25
English Standard—	
26 gauge	12 25
28 gauge	12 50
24 gauge	11 65
22 gauge	11 30
18 and 20 gauge	10 85

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Ten Cents Added to Iron and Bar Steel

Montreal.

IRON AND STEEL.—Ten cents per 100 pounds has been added to the price of common bar iron, and there has, as well, been a like advance on various other bars such as iron finish machinery steel, sleighshoe steel, refined iron, etc. The market is quite an active one and manufacturers experience difficulty now and then in supplying certain sizes. There is bound to be a steadily firm market, with new advances no t improbable if present transport conditions and labor difficulties continue.

IRON AND STEEL

Iron finish machinery steel		$5 05
Norway iron	13 50	15 00
Single reeled machinery steel		6 50
Spring steel		5 50
Sleigh shoe steel		5 50
Tire steel		5 20
Toe calk steel, per 100 lbs.		5 90
Band steel		5 00
Harrow tooth steel		5 15
Mining tool steel, per lb.		0 24½
Black diamond tool steel, per lb.		0 24½
Black diamond cast steel, per lb.		0 24½
Common bar iron, per 100 lbs.		4 65
Refined iron, per 100 lbs.		5 65
Mild steel		5 00

3-16 and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

Waste Market Firm; Hard to Get Stock

Montreal.

COTTON WASTE.—Prices are maintained on cotton waste of all grades, and there is little to indicate lower prices, say dealers. One of the present difficulties is that of getting ample stocks. Importers state to Sanitary Engineer that the transportation conditions have worked against them and that it has been for some time a problem to get the necessary supplies forward. With embargoes of one kind and another added to this it is safe to say that there will not be an immediate easing of the undertone.

WASTE	
Cream, Polishing	0 28
WHITE	
XXX	0 23
XX	0 21½
X	0 20
XC	0 18½
Japanese	0 17
XXX	0 24
XX, grad.	0 22½
XLCR	0 21
X Empire	0 19½
X Press	0 17½
X Special	0 15½
COLORED	
No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 19
Lion	0 17
Standard	0 15
Popular	0 13
Keen	0 11

Above lines subject to trade discount for quantity.

Range Boiler Stock Not Easily Obtained

Montreal.

RANGE BOILERS.—Stock for making range boilers is scarce, plates being on a premium basis, with mills not producing in quantities to meet the demand. The prices basis, while higher than it was a few weeks ago, has ruled steadily for several weeks, and 30-gallon standards are selling at $15 each, with extra heavy quoted $3 higher. There is little probability of production speeding up greatly under raw material conditions.

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Above Two Inches Water Pipe Scarce

Montreal.

WROUGHT PIPE.—The list of April 8, 1920, is still effective. The present conditions are somewhat difficult in that pipe of above two inches diameter is difficult to obtain. There has been a steadily active demand from the trade for various quantities of all sizes, and the manufacturer and jobber, as well as the retailer, would be greatly relieved were supplies forthcoming more readily. The following list is now in effect:

PIPE—WROUGHT
Price List No. 44—April 8, 1920.

STANDARD BUTTWELD S/C.

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
⅛ in.	$6 50	$ 8 50	....	....
¼ in.	5 13	7 26	$ 5 43	$ 7 56
⅜ in.	5 13	7 26	5 43	7 56
½ in.	6 84	8 42	7 27	8 84
¾ in.	8 45	10 58	9 03	11 16
1 in.	12 50	15 64	13 35	16 49
1¼ in.	16 91	21 16	18 06	22 31
1½ in.	20 21	25 30	21 59	26 68
2 in.	27 20	34 04	29 05	35 89
2½ in.	43 00	53 82	....	....
3 in.	56 23	70 38	....	....
3½ in.	71 30	88 32	....	....
4 in.	84 48	104 64	....	....

STANDARD LAPWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
2 in.	$30 90	$37 74	$34 60	$41 44
2½ in.	45 34	56 16	51 19	62 01
3 in.	59 29	73 44	66 94	81 09
3½ in.	73 14	90 16	82 34	99 36
4 in.	86 66	106 82	97 56	117 72
4½ in.	0 98	1 23	1 24	1 49
5 in.	1 15	1 44	1 44	1 73
6 in.	1 49	1 86	1 87	2 25
7 in.	1 94	2 43	2 42	2 90
8-L in.	2 04	2 55	2 54	3 05
8 in.	2 35	2 94	2 92	3 51
9 in.	2 81	3 52	3 50	4 21
10-L in.	2 61	3 26	3 25	3 90
10 in.	3 36	4 20	4 18	5 03

Terms—2% cash discount if paid within 30 days. Approved credit.

Very Difficult to Get Supplies Boiler Tubes

Montreal.

BOILER TUBES.—Prices have been very firmly maintained on boiler tubes. This is likely to continue and prices may even go higher. It is, state the jobbers, very difficult at this time to obtain the necessary stock from manufacturers. With little probability of conditions improving soon, there is unlikely to be a lowering of prices; the opposite may soon obtain.

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 00	30 00
2 inch	37 00	32 00
2¼ inch	37 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Enamelled Ware Active; Stocks Reported Fair

Montreal.

ENAMELLED WARE.—Stocks of enamelled ware are reported to be fairly complete and there has been a steady demand from all sources for the various specialties wanted by the trade. Prices on lavatories and sinks, bath tubs and closets, have ruled quite steady, and changes are not anticipated at the moment. Some price cutting has been going on, it is stated, and this, to an extent, still continues.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4045			11 05
18x24" Apron F154 or P3845 or P3847			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9 05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Standard Closets Are Holding Unchanged

Montreal.

CLOSETS.—Standard ordinary bowl Low Down combination closets are still selling at $30.50 each. This is the standard oak tank, oak seat closet, with china lever handle. There is considerable demand from the trade for these, and supplies are adequate at present to take care of the same.

Valve Lists Steady; Trade Demand Active

Montreal.

VALVES AND COCKS.—The market is active, jobbers and manufacturers reporting a steadily satisfactory volume of business from all parts of the country. Some of the labor troubles that have

prevailed for a time are now settled, it is understood, and while it will be good news to know that the men are back at their work, it will be a long while before the lost production is overtaken.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Steady Orders Come Along For Soil Pipe

Montreal.

SOIL PIPE, FITTINGS.—Prices are maintained on soil pipe and fittings, and there is a seasonably active demand for stock. The demands are expected to continue active all through the summer.

SOIL PIPE (Medium and extra heavy)—Net.
2-3-5 and 6-inch, add 10% to list.

FITTINGS—
4-inch, net list.
2 to 6 inch, fittings, 20% discount.
8 inch pipe and fittings, add 20% to the list.

Pipe Fittings Hold; Lists Without Change

Montreal.

PIPE FITTINGS.—Prices have remained firm, but unchanged, on all lines of pipe fittings. The undertone is firm, however, and under present conditions there is unlikely to be a lowering of prices. Active marketing to the trade is reported.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Oakum in Demand; Prices Are Held

Montreal.

OAKUM.—Price for plumbers' oakum still holds at $10. There is an active demand and this will likely continue. Under present conditions there is little indication of an easier market; a change, if made, would doubtless come as an advance.

Conductor Pipe and Trough May be Scarce

Montreal.

PIPE AND TROUGH.—With sheets so scarce the manufacturers will have some difficulty in supplying large quantities of eavestrough and conductor pipe. With a great deal of building still in prospect there is bound to be a heavy tax on the manufacturer for supplies right through the summer season. The undertone is firm.

Radiator Demand Heavy; Shortage May be Felt

Montreal.

RADIATORS.—Prices have been very firm on radiators. It has been practically impossible to supply the trade with all their needs, and there is a large, unfilled order list on the books of many manufacturers. Labor troubles have somewhat lessened of late, and a large Montreal manufacturer resumed work again this week. At the same time it was pointed out to Sanitary Engineer that production has been so reduced that it cannot, this year, be made up. This will be a handicap that can only result in one thing—a difficulty of delivering orders that are delayed, with the possibility of non-delivery this year. Orders that are so delayed, one manufacturer points out, may not be filled at all.

TORONTO MARKETS

TORONTO, June 30.—Few actual price changes have been made this period. Although the majority of prices are quoted from a very firm basis, and the tendency is upward with a possibility of further upward price revision in the near future.

Flat sheets have failed to come forward in sufficient quantities to offer any relief to the situation, and a famine for sheets still prevails. The quotations on soil pipe are very firm and supplies are hard to obtain, this also applies to range boilers. Wrought pipe in some sizes is also causing inconvenience on account of the scarcity.

The base of the present scarcity of supplies is said to be the freight transportation embargo which has caused a coal and fuel famine and some industries have been forced to close down, while others are greatly handicapped.

Those in the trade are enjoying a very prosperous season, and considerable material is being used, although some have been held up on account of the scarcity of supplies. Collections are coming freely.

Ruby Lantern Globes Now Cost $5.50 Per Doz.

Toronto.

RUBY LANTERN GLOBES.—New and higher prices have been made on Ruby lantern globes, the new price now being quoted at $5.50 per doz.

Shortage of Fuel May Firm Price of Bars

Toronto.

IRON AND STEEL BARS.—The fact that some mills in both United States and Canada have been forced to close down on account of the great shortage of coal and fuel of all kinds may have an important bearing on the future delivery of iron and steel bars. Jobbers state their stocks at present are not heavy, although they state they are able to take care of most orders. However, some of the better selling sizes are becoming very low and jobbers hold little hopes for immediately replenishing their stocks. The present quotation is a very firm one, and although the present prices remain steady it is hard to state what the future will show on deliveries and future prices. The following are the present quotations:

Common bar steel, 3-16 and light	6 00
Common bar steel, ¼ in. and heavier	5 50
Common bar iron, 3-16 in. and heavier	6 00
Common bar iron, ¼ in. and heavier	5 50
Angle base	5 75
Horseshoe iron	6 00
Tire steel	5 95
Band steel	5 75
Spring steel	12 75
Mining drill steel	31 25
Sheet cast steel	....
Mild steel	5 75
Norway iron	16 25
Toe caulk iron	6 70
Sleigh shoe steel	5 75
Hoop steel	6 75

Pipe Fitting Prices Steady; Demand Good

Toronto.

PIPE FITTINGS.—A very satisfactory business is being done in this commodity and a good volume is moving out. The present quotations on fittings are very firm and no change in price has recently been made. The following are the present quotations:

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	17½%
Do., 2½-in. and larger	9¼%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Closet Bowl Shipments Tardy; Prices Firm

Toronto.

CLOSET BOWLS.—The tendency for higher prices is still very noticeable on this commodity, although the present quotation is very firm and unchanged.

There is still some difficulty in securing sufficient supplies, which is mainly due, it is stated, to the unsatisfactory condition of freight transportation.

Eavetrough Prices Firm; May Be Advanced

Toronto.

EAVETROUGHS AND CONDUCTOR PIPE.—Owing to the great scarcity of sheets manufacturers find some difficulty in supplying the demand for eavetroughs and conductor pipe, etc. The present quotations are very firm, although no change has recently been made in the price. It is hard to state, however, how long this situation will continue as the manufacturers state it is necessary for them to pay more for raw material, which is liable to affect the price of finished product. The following are the present quotations:

PIPE (Conductor)

Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.
8-in	15-in	$12 50
10-in 7 70	18-in	16 00
12-in 9 10		

Add 15% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Prices Are Steady on Cotton Waste

Toronto.

COTTON WASTE.—The present quotations on cotton waste are very steady and the situation is rather firm. However, many are looking forward to the new crop and very few care to predict the future situation on account of the uncertainty of the crop. There has been some rumor that the weather conditions were unfavorable to the growing of cotton, although this is said to have been overcome and that conditions are now very favorable. However, until such a time as the crop is harvested there is always a certain amount of uncertainty. The demand for cotton waste is seasonably heavy and jobbers are very well satisfied with the volume moving. The following are the present quotations:

WASTE	
Cream, Polishing	0 28
WHITE	
XXX	0 23
XX	0 21½
X	0 20
XC	0 18½
Japanese	0 17
XXX	0 24
XX, grad.	0 22½
XLCR	0 21
X Empire	0 19½
X Press	0 17½
X Special	0 15½
COLORED	
No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 19
Lion	0 17
Standard	0 15
Popular	0 13
Keen	0 11

Above lines subject to trade discount for quantity.

Waste Materials Have Sagging Price Tendency

Toronto.

WASTE MATERIALS. — The fuel shortage has been the cause for the slackening of many industriec, and as a result the demand for waste materials of nearly all kinds has been very slack and in consequence the tendency is downward. Although the present quotations are very weak no change has been made in the price. The present quotations are as follows:

DEALERS' BUYING PRICES

Pipe scrap	11 00
No. 2 busheling	13 00
Stove plate, per ton	....
Yellow brass	0 10
Red brass	0 15¾
Light brass	0 08
Scrap zinc	0 06½
Heavy copper	0 17
No. 1 machinery cast	....
Wrought iron, No. 1, per gr. ton	15 00
Heavy melting steel	15 00
Heavy lead pipe	0 06
Old rubbers, boots and shoes	0 06
Overshoes, lumbermens' rubber boots	0 04
Bicycle tires	0 01½
Automobile tires	0 03
Tea lead	0 04
Heavy lead pipe	0 06

Solder Prices Firm; Lead Pipe, Waste Moving

Toronto.

LEAD AND ZINC PRODUCTS.—Little change has been made on the price of any of the products here listed, although lead pipe, lead waste pipe and traps and bends have showed considerably more strength and are being quoted from a firmer basis. Solder of all kinds has also strengthened; the present quotations are very firm. The present demand for all lines of plumbers' lead work continues to be very favorable and good volume is moving out. A very good movement has also been made for solder and demand has also been very satisfactory. The following are the quotations on some of the better known lines:

Lead pipe, list, per lb.	0 17
Lead waste pipe, list, per lb.	0 18
Do., over 8 in., list, per lb.	0 19
Lead traps and bends	add 30%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 13
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 43
Solder, strictly, lb.	0 35
Solder, commercial, lb.	0 33
Solder, guaranteed, lb.	0 39
Solder, wiping, lb.	0 33
Zinc sheets, per lb.	0 19

Boiler Tubes May Be Scarce; Price Firm

Toronto.

BOILER TUBES.—The situation on boiler tubes has tightened up to some extent and jobbers state that now they are concerned for a scarcity in the near future. This reversal in the situation, they state, has been brought about by the great scarcity of coal and fuel of all kinds which is at present prevailing throughout both the United States and Canada, and which is mainly due to the tie-up on the railroads. The fact that some large projects have been opened and the skelp mills have been supplying skelp for pipe and other uses at a premium may also be a factor for the difficulty in securing supplies. The present quotations are as follows:

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 00	30 00
2 inch	37 00	32 00
2¼ inch	37 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Famine Prevails For Sheets and Plates

Toronto.

SHEETS AND PLATES.—The famine for sheets and plates has been so persistent and has prevailed for such a length of time that little comment is being made on the present situation, although jobbers state it is really worse now than formerly. The shortage of fuel at some of the United States and Canadian mills is said to be so great that some of these mills have been compelled to close down, and in the face of the already great shortage some of the better informed are of the belief that the situation will have a setback of several months. In many cases jobbers state they have numerous shipments on the road, but the congestion has been so great that they have not as yet been able to secure their shipments, and while it is true that several shipments have come to hand these are said to have been so eagerly sought that their improvement on the situation was hardly perceptible. The following prices are quoted here merely as a guide, as it is believed that very few could supply a full list of sizes, and owing to the present scarcity it is necessary in many cases to pay premiums over these quotations, as jobbers find it necessary to go into the local markets in order to secure the urgently needed stock to fill their orders:

BLACK SHEETS

14 gauge	$8 95
16 gauge	9 00
18-20 gauge	9 45
22-24 gauge	9 50
26 gauge	9 55
28 gauge	9 65
3-16 inch plate	9 75
¼-inch boiler plate	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$12 00	$11 50	$12 00	$12 25
U.S. 28	11 45	11 70	11 45	11 85
U.S. 26	11 15	11 40	11 15	11 55
22 and 24	11 00	11 25	11 00	11 40
18 and 20	10 70	10 95	10 70	11 00
16	10 70	10 95	10 70	11 10
12 and 14	10 55	10 20	10 55	10 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Corrugated Sheets Scarce; No Raw Material

Toronto.

CORRUGATED SHEETS.—The situation which has developed in flat sheets has a serious effect on the corrugated sheet situation, and manufacturers state they have great difficulty in securing supplies of sheets of the proper kind for corrugation purposes. The recent freight transportation difficulties have not been without their effect on this commodity and manufacturers state that any supplies they were fortunate enough to secure have been tied up in transit. This situation in conjunction with the great shortage of steel which has prevailed since the previous strike during the latter part of the fall of 1919, has seriously handicapped all concerned. The present quotations are very firm and no change has been made in the list prices, although it is believed that in most cases premiums are being charged on account of it being necessary for the manufacturers to go into the local markets and buy raw materials at premiums, etc. The following are the present quotations:

CORRUGATED SHEETS—	Per 100 sq. feet Galv'd
No. 28-gauge	$10 50
No. 26-gauge	11 25
No. 24-gauge	16 75
No. 22-gauge	19 75
No. 20-gauge	23 50
No. 18-gauge	30 00

On shipments of 300 lbs. and over, freight is allowed south and east of and including North Bay; also several western counties in Quebec Province. Places north and west of North Bay, the freight is equalized on North Bay. For Quebec and Maritime Provinces, freight is equalized on Montreal.

Discount 7½%.

Enamelled Ware Prices Firm; Fair Stocks

Toronto.

ENAMELLED WARE.—The demand continues to be a very heavy one for nearly all lines of enamelware, and very satisfactory volume of business is being handled. Notwithstanding the shortage of coal, materials and transportation difficulties, the present production is very favorable and manufacturers state they are able to handle nearly all orders. There is a heavy demand at present for small basins, particularly is this true of some special styles. The present quotation on nearly all lines of enamelledware is very firm and whether a change is made in the price in the near future remains to be seen. The situation, however, at present seems to be very steady and many are hoping for at least a continuation of the present quotations. The prices on some of the better known sizes and styles are as follows:

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4045			11 05
18x24" Apron F154 or P3845 or P3847.			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9 05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Soil Pipe Supplies Light; Demand Continues Heavy

Toronto.

SOIL PIPE.—The situation regarding soil pipe continues to show little change and supplies generally throughout Eastern Canada are light, and in some cases there is a scarcity. The situation in Western Canada, however, seems to be the reverse and supplies are readily available. The demand is said to be very satisfactory, and at present is a very heavy one, and many jobs are being undertaken. The present quotations on soil pipe are very firm, although no change has been made within the past two weeks. The new quotations read as follows:

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, add 10% to list.

FITTINGS—
4-inch, net list.
2 to 6 inch fittings, 20% discount.
8inch pipe and fittings, add 20% to the list.

Big Demand For Range Boilers; Price Firm

Toronto.

RANGE BOILERS.—Little improvement has been shown in the delivery of range boilers and nearly all concerned are still living from hand to mouth, it is stated. This situation is partly due to the shortage of fuel, although shortage of raw material and transportation difficulties are also factors. Notwithstanding the higher prices that are prevailing on this commodity, the demand continues to be very heavy and good volume is moving out considering the difficulty of procuring supplies. Owing to the uncertainty of present market conditions few are predicting what the future will reveal, and whether higher prices will again be made on this commodity is hard to state, although it is believed that few would be surprised if this should be the case. Few, if any, however, are looking for an immediate change in price. The following are the present quotations:

Range Boilers—	Standard	Ex.Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Valves, Cocks, Gauges, etc. Have Heavy Demand

Toronto.

COMPRESSION WORK.—The demand for nearly all lines of compression work continues to be a very heavy one and in some cases manufacturers state they are several weeks behind in their deliveries, which they attribute to the difficulty of securing supplies, although the excessive demand is said to be a factor. A continued heavy demand is being made for valves and steam gauges and many lines of brass fittings are also being keenly bought. The present quotations are very firm, although there seems little indication that any immediate change will be made in the present quotation. If anything, the tendency is still upwards. Some of the better known lines are quoted as follows:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Supplies of Wrought Pipe Coming Slowly

Toronto.

WROUGHT PIPE.—Many conjections are being made as to what the future will show for the supply of wrought pipe. The present great shortage of coal and fuel is a great detriment to the manufacture of this commodity, it is stated. The freight transportation difficulties have also been big factors in curtailing of supplies, and this in conjunction with the heavy demand is putting considerable strain on the manufacture of this commodity. The scarcity of skelp, and the fact that some skelp mills have closed down also aggravate the situation, it is stated. Some jobbers state they have fair stocks of pipes although some of the most important sizes are becoming very low and that they have great difficulty in securing replenishments. The present quotations are very firm, although no change has been made in the price which is as follows:

PIPE—WROUGHT

Price List No. 44—April 8, 1920.

STANDARD BUTTWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
⅛ in.	$6 50	$ 8 50	....	....
¼ in.	5 13	7 26	$ 5 43	$ 7 56
⅜ in.	5 13	7 26	5 43	7 56
½ in.	6 84	8 42	7 27	8 84
¾ in.	8 45	10 58	9 03	11 16
1 in.	12 50	15 64	13 35	16 49
1¼ in.	16 91	21 16	18 06	22 31
1½ in.	20 21	25 30	21 59	26 68
2 in.	27 20	34 04	29 05	35 89
2½ in.	43 00	53 82	....	....
3 in.	56 23	70 38	....	....
3½ in.	71 30	88 32	....	....
4 in.	84 48	104 64	....	....

STANDARD LAPWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
2 in.	$30 90	$37 74	$34 60	$41 44
2½ in.	45 34	56 16	51 19	62 01
3 in.	59 29	73 44	66 94	81 09
3½ in.	73 14	90 16	82 34	99 36
4 in.	86 66	106 82	97 56	117 72
4½ in.	0 98	1 23	1 24	1 49
5 in.	1 15	1 44	1 44	1 73
6 in.	1 49	1 86	1 87	2 25
7 in.	1 94	2 43	2 42	2 90
8-L in.	2 04	2 55	2 54	3 05
8 in.	2 35	2 94	2 92	3 51
9 in.	2 81	3 52	3 50	4 21
10-L in.	2 61	3 26	3 25	3 90
10 in.	3 36	4 20	4 18	5 03

Terms—2% cash discount if paid within 30 days. Approved credit.

Tin Has Better Tone, Also Lead; Price Unchanged

Toronto

INGOT METALS.—Little change has been made on ingot metals. Tin has a better tone and the demand is some heavier. Lead is more buoyant. Copper

MADE IN CANADA

MUELLER

Nickel Plated

Adjustable Basin Traps

With Cast Parts

We offer N.P. Adjustable Basin Traps, S. and P., Plain and Vented, in 1¼" size, for prompt shipment.

Mueller Traps combine:

Beauty of Design,
Quality of Material
and Finish.

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

H. Mueller Mfg. Co., Ltd.

SARNIA
CANADA

MANUFACTURERS OF HIGH GRADE MUELLER WATER PLUMBING AND GAS BRASS GOODS

is quiet, and a much better feeling is noted for spelter.

TIN.—The tone is much better for tin and a fair demand has also picked up. The price still holds at 60c per

COPPER shows no change over last week's quotation. The present price is quoted at 24 cents per pound.

LEAD.—The lead market seems more buoyant, and the tendency is upwards. The quotations, however, remains steary at 10½ cents per pound.

ANTIMONY stocks continue light although the situation is somewhat firmer. The present price is 12 to 15c per pound.

SPELTER.—A fair demand is being made for spelter. The price remains unchanged and is quoted at 10½ cents per pound.

ALUMINUM has fair demand, the price still remaining around 37 cents per pound.

To Collect Luxury Tax With Stamps

Stamps in Varying Denominations to Be Ready by July 1—Will Be Equivalent to Government Currency so Will Have to Be Thoroughly Defaced—Collections Slow—Will Enforce Licensing System—Imported Goods Only Pay 1 Per Cent. Tax.

APART from the announcement that the luxury tax is to be collected by means of revenue stamps, there has been little or no change in the taxation measures for some days. It is evident, therefore, that the amended resolutions are to be taken as an official basis for the collection of taxes, and that this basis will be more or less permanent. A complete statement of how the taxes apply to the lines sold through the hardware trade is reproduced elsewhere in this issue, and it would be advisable for the dealer to keep this list in a convenient place for reference. Any amendments forthcoming later will be mentioned in these columns.

The decision to collect the luxury taxes by means of stamps came as a result of the difficulties experienced in the collection of the taxes by means of retailers making a return with invoice for each sale. The latter method has proved cumbersome and costly. The revenue stamps to be used in future will be ready by July 1, and as they are available for purchase by merchants, the sending of duplicates of every sales receipt covering goods which are taxable, will cease. This will prove a great relief to merchants throughout the country and also the Inland Revenue Department which was taking on a large staff of clerks to check the invoices.

Denominations of Stamps

Revenue stamps will be provided in denominations of from 1 to 10 cents inclusive, 13 cents, 15 cents, and all multiples of 10 cents, up to $1. In addition there will be one, two, three, four, five and ten dollar stamps. If a person buys an article worth $200 on which the tax is 10 per cent. or $20, the procedure will be for the salesman to affix two $10 stamps to the sales slip or invoice and collect $20 from the purchaser, the stamps acting as evidence that the tax has been paid. The stamps will have to be defaced so that they cannot be used again.

Stamps used for this purpose would have a value equal to that of bank notes or Dominion bills for a similar amount, and a great deal of attention is, therefore, being given to the question of having the stamps so defaced that they cannot be "raised" or used again. The use of ink may not be considered sufficient, as traces of ink can often be removed. Some kind of punch has been considered for the purpose of perforation. The use of indelible ink or pencil has also been suggested, but whatever device is adopted will provide ample protection against the fraudulent use of the stamps.

Will Enforce Licensing System

Collections on the new taxes have been very slow all over the Dominion. In Montreal the revenue produced has been only one-fifth of what was expected. There are 26,000 business places in Montreal, but of those only 2,300 had made entries for their taxation. The licensing system will have to be enforced before the Government will be able to go after those who fail to make returns, and action then will be along the line of cancelling that dealer's license. He will then be unable to resume business until his taxes are paid and the license renewed. This license system allows the Inland Revenue Department to keep after taxes in arrears both on luxury and sales taxes.

With regard to the failure of so many to report, G. W. Taylor, Assistant Deputy Minister of Customs, states that there has been a great deal of uncertainty in the minds of merchants, they having gained the impression that there would be modifications and, therefore, delaying returns until the situation became clarified.

Imported Goods Only Pay 1 Per Cent. Tax

A ruling recently given by the Inland Revenue Department is that goods imported for use in manufacture in Canada would not be subject to the double sales tax of 2 per cent., as would be the case if applied by both the importer and manufacturer, but only to the importer's sales tax of one per cent.

CONDENSED ADVERTISEMENT

FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

From Cold to Hot in 60 Seconds

STACK HEATER

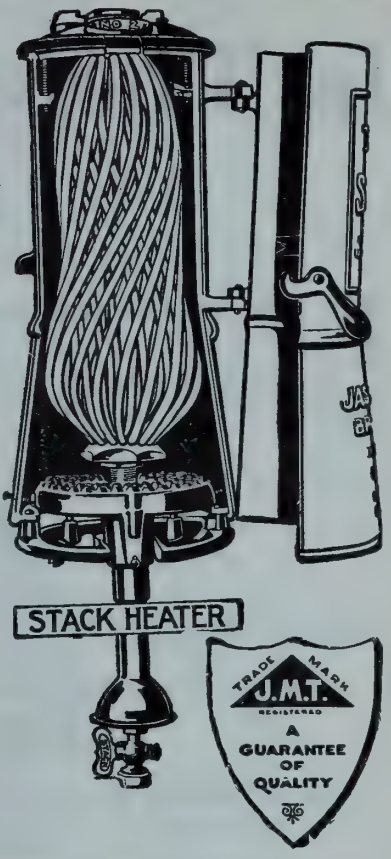
Take note of the small size and large number of coils; this means quick heat. The numerous small pipes will naturally heat water quicker than one big pipe because of the greater heating surface offered.

You can sell your prospect with certainty when you show him that this dependable heater will heat water in one minute.

Send for a Stack Heater Display Card.

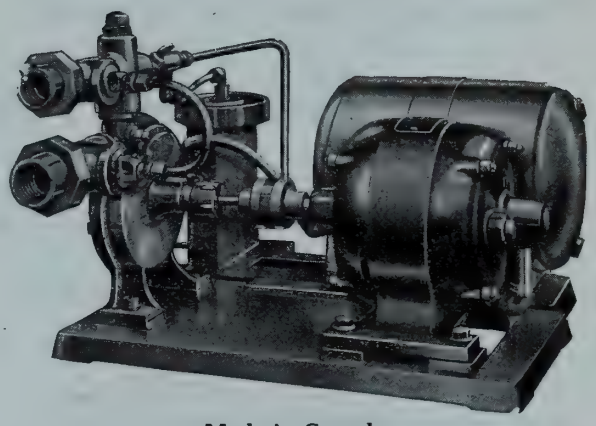
The James Morrison Brass Mfg. Co., Limited

93-97 Adelaide Street West, Toronto, Ontario



Westco

The Water System Without a Tank Is a Sure Selling Line That Will Bring You Handsome Profits



Made in Canada

An inspection of this compact system and the low initial outlay and cost of maintenance and operation will very quickly convince the farmer, rural or suburban resident that no other water system but the Westco Tankless System will do.

In selling this water system the dealer's duty is simply to explain how it operates, why it is easier to operate and maintain, and to elaborate a little on the comfort and conveniences of running water for kitchen, barns, bathroom and inside toilet for houses in country districts.

The Westco Tankless Water System is a good line to introduce, because the need of such a system is very urgent. Sales will be rapid; your profits will mount up very quickly.

Its main selling points include:

(a) Low cost to install, maintain and operate.
(b) Entirely automatic; turn tap and pump starts at once; close tap, pump ceases.
(c) Has no tank, no valves, no gears, no belt, no springs, no oil or grease cups, and is self-lubricating.
(d) Uses less power than Electric Iron while supplying water to a number of faucets.
(e) Pumps 300 to 500 gallons per hour.
(f) Needs no storage tanks; pumps water direct from well to faucets.

There are many other features too numerous to mention here. You cannot afford to ignore this business opportunity. Write at once for particulars, and obtain the selling rights in your territory if it is still open.

Westco Pumps, Ltd., 707 Yonge St., Toronto, Ont.

Is There an Alien Menace in Canada?

IN THE years of war, people were quick to grasp the possibilities of danger that lie in Alien sympathies. But people quickly forget, and therein lies the danger for it is in the insidious breaking down of the ties of loyalty, that goes on in the piping times of peace, that makes the menace of the days of war.

In "The Stranger in Our Midst" the simple story of a school teacher's experience in foreign settlements in the West there lies a reproach and a warning, a reproach in that such things can be, and a warning that they may not happen again.

This is only one of the many stories and articles that make the June 15th issue of MacLean's Magazine of outstanding interest.

These are some other points of interest:

FICTION

"The Little Warrior"—Pelham Grenville Wodehouse's inimitable story.

"The Parts Men Play"—Arthur Beverly Baxter.

"The Sunset Homesteader"—Will E. Ingersoll.

"The Beetle and the Butterfly"—C. W. Stephens.

ARTICLES

"What Must Be Done?"—Mrs. Murphy's suggestions of a remedy for the drug menace.

"We Must Reform Dress"—Marian Keith.

"Gentlemen of the Fourth Estate"—The story of men who begin life in newspaper offices.

The Best From Everywhere

In the Review of Reviews department will be found the best articles from all magazines and periodicals the world over. Look at these titles and authors:

"Belgium Has Come Back"—by Frederick Palmer.

"How the English Came to Be"—by Rudyard Kipling.

"Eight Billions Wasted"—by Thomas V. Merle.

"Mankind Needs Change of Heart"—by Sir Philip Gibbs.

"Give Labor a Square Deal"—by Charles M. Schwab.

"The Slow Conquest of America"—by Forrest Crissey.

"Know Your Own Car"—by Alexander C. Johnson.

"Sending Pictures by Telegraph"—by Milton W. Stoddard.

MACLEAN'S

"CANADA'S NATIONAL MAGAZINE"

June 15th Issue Now on Sale at All Newsdealers

If interested, tear out this page and keep with letters to be answered.

The Trade K—T Mark FOUNDRY
GALT ONT.

K-T

STANDARD

Soil Pipes and Fittings are of pleasing design and good finish. They look good and they are good

SPECIALS

Range Boiler Stands are adjustable to 30-35-40 gallon boilers, and you can connect directly under the boiler. Inexpensive but flawless.

Your jobber can supply our goods--if you ask for them

M.&T. Coils

Sold by the Firms Mentioned Below--

TORONTO
Burrow, Stewart & Milne Co. Limited
Canada Pipe & Steel Co. Limited.
Cluff Bros.
Dominion Radiator Co. Limited.
The Empire Mfg. Co. Limited.
Gurney Foundry Co. Limited.
Jas. Morrison Brass Mfg. Co. Limited.
W. A. Porter & Co.
Jas. Robertson Co. Limited.
Standard Sanitary Mfg. Co. Limited.
Steel & Radiation, Limited.
Taylor-Forbes Co. Limited.
Warden King Limited.
Crane Company.

WINNIPEG
J. H. Ashdown Hardware Co. Limited
Burrow, Stewart & Milne Co. Limited
Crane Company.
Dominion Radiator Co. Limited.
Gurney North West Foundry Co. Limited.
Jas. Robertson Co. Limited.
Vulcan Iron Works Limited.

VANCOUVER
Crane Company.
Gurney Foundry Co. Limited.
Taylor-Forbes Co. Limited.

CALGARY
J. H. Ashdown Hardware Co. Limited

GUELPH
Taylor-Forbes Co. Limited.

HAMILTON
Burrow, Stewart & Milne Co. Limited
Hamilton Stove & Heater Co. Limited
C. Marks & Co.
Standard Sanitary Mfg. Co. Limited.
Taylor-Forbes Co. Limited.

LONDON
The Empire Mfg. Co. Limited.
The Hobbs Hardware Co. Limited

MONTREAL
Burrow, Stewart & Milne Co. Limited
Dominion Radiator Co. Limited.
Gurney-Massey Co. Limited.
Jas. Robertson Co. Limited.
Steel & Radiation, Limited.
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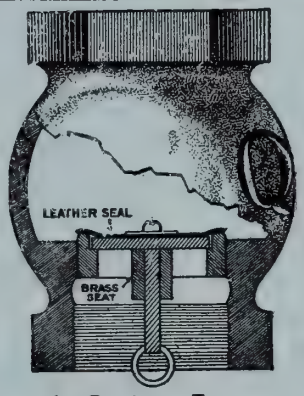

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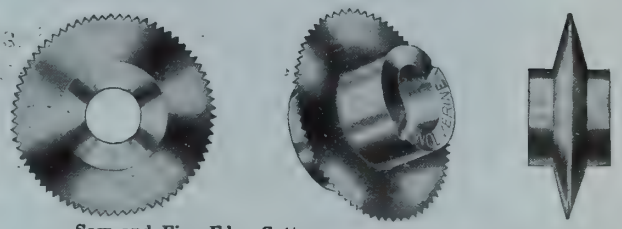

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The Publisher's Page

TORONTO JULY 1, 1920

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THE Directors of the Canadian Press Association decided in 1919 that the MacLean Publishing Company was the largest newspaper organization in Canada and must therefore pay the highest annual fee to the Association. The Montreal "Star," with its two big weeklies, comes second, but the "Star" group had been doing business for 18 years before the MacLean Company began. While we have not the details upon which the Press Association based their decision, we understand they figured that the MacLean Company had a larger advertising revenue. This is not the case. Lord Atholstan's properties probably carry a third more business, use more paper and have a greater total circulation. The MacLean papers on the other hand get more revenue from circulation; have to pay perhaps three times as much in salaries and wages and show considerably less profit.

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Sanitary Engineer

Plumber and Steamfitter of Canada

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OPEN VIEW
NO. 10-A

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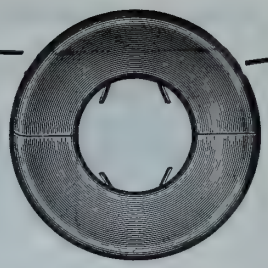

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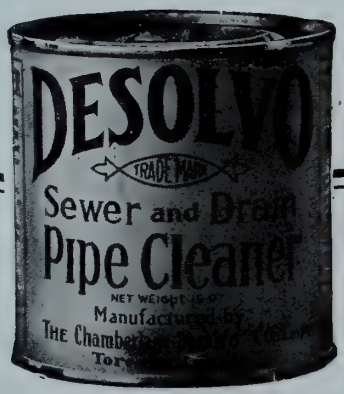

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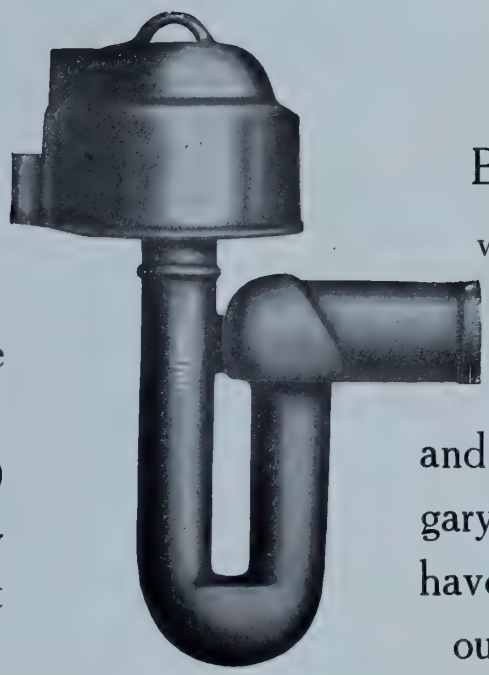

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Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, JULY 15, 1920 No. 14

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A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

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MANITOBA and NORTHWEST:
E. B. Plewes, 120 Lombard St., Winnipeg

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TINKER TOM'S TALKS.

No. 268

In next week's ad. in our regular space we will show the lucky ones to win the $25.00 cash for sending in the three most complete lists showing *modern uses of Galvanized Sheets.*

There's not a single item where

Premier Galvanized Sheets

cannot be used to advantage.

Look for the winners next week.

TINKER TOM.

DOMINION SHEET METAL CORP. LTD
MADE IN PREMIER CANADA
HAMILTON, CANADA.

There Are Lots of Gate Valves

Advertised and Sold

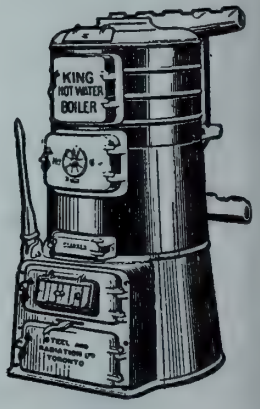
but not all of them possess that neat appearance, combined with strength and stability, which characterizes

KERR IRON BODY GATE VALVES

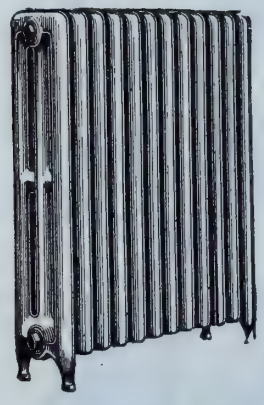
Specify KERR'S (KEYSTONE) Iron Body Gate Valves on your next order, and let us prove what we claim for them.
Our Catalogue No. 5 tells all about them. It is yours for the asking. Write us to-day.
Approved by the Fire Underwriters' Association, and Registered by Boiler Inspection Departments of Ontario, Saskatchewan and Alberta.

THE KERR ENGINE COMPANY, LIMITED - Walkerville, Ontario

Reputation Builders



KING HOT WATER BOILERS AND IMPERIAL RADIATORS



The heating engineer with the reputation is the one who gets the business. King Boilers and Imperial Radiators will earn you an enviable reputation. Low in the consumption of coal and high in ability to heat every corner of the house, they always satisfy. Don't take chances, recommend and install King Hot Water Boilers and Imperial Radiators on every job.

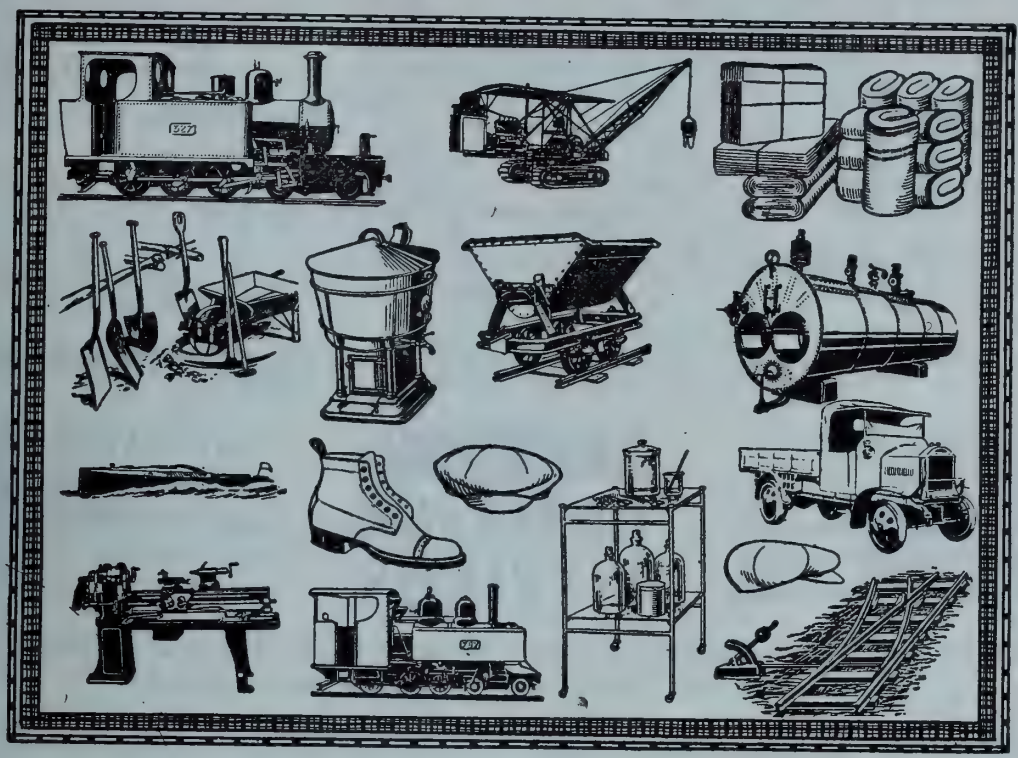
STEEL AND RADIATION, LIMITED

Manufacturers of Hot Water *and* Steam Boilers *and* Radiators; Fenestra Steel Sash *and* Concrete Reinforcing

Head Office: Fraser Ave., Toronto **Sales Offices : Montreal, Toronto, Quebec**

A Complete stock of all lines is carried at our Montreal warehouse.
Western Agents: The J. H. Ashdown Hardware Co., Ltd., Winnipeg

MINISTRY of G R MUNITIONS



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Electrical Instruments and Machinery
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Aircraft
Furniture
Textiles and Clothing
Motor Boats, etc., etc.
Boots and Leather Equipment

Buyers should instruct their representatives in the United Kingdom to communicate with D. B. 8, Canadian Export Department, Ministry of Munitions, Whitehall Place, S.W.

Cable address: "DISPEXPORT, MUNORGIZE, LONDON."

Pipe Fittings

Made in Canada

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

CAST IRON FITTINGS
With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

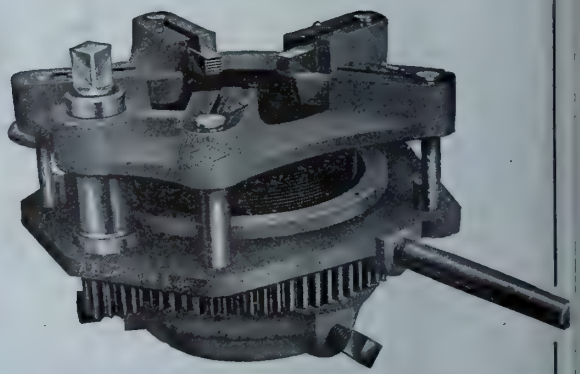
RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS
With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

JARDINE and TOLEDO PIPE THREADING TOOLS



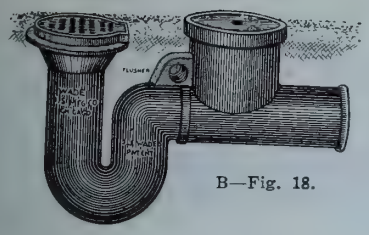
"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2½ to ½ in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or jim cracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

SEND FOR CATALOGUE

A. B. JARDINE & COMPANY, Ltd., HESPELER, ONT.

Sole makers of "Jardine" Pipe-Threading Tools.
Sole licensees to manufacture and sell Toledo Pipe-Threading Tools in Canada.
Agents, Winnipeg and West—Stanley Brock, Ltd., Winnipeg, Man.
Brockville and East—J. R. Devereux, 358 Beaver Hall Square, Montreal.
Belleville and West—W. H. Cunningham & Co., 183 Church St., Toronto, Ont.



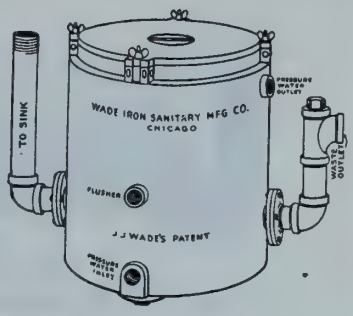
B—Fig. 18.

Wade Accessible Clean-out Drain Flushing Cesspool Back Water Gate Trap—Valve Combination.

Plan on Installing WADE Up to date FITTINGS in 1920

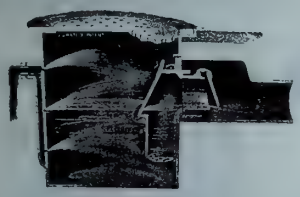
WADE Back Water Gate Valves and House Drainage, Sewer Flushing Fittings embody the latest improvements in design and construction.

They are approved by sanitary engineers and comply with health ordinances.



B—Fig. 27.
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

Wade Iron Sanitary Manufacturing Co. 551 W. Fulton St. CHICAGO



B—Fig. 126.
Wade accessible flushing cleanout floor wash and backwater valve combination.

B—Fig. 13.

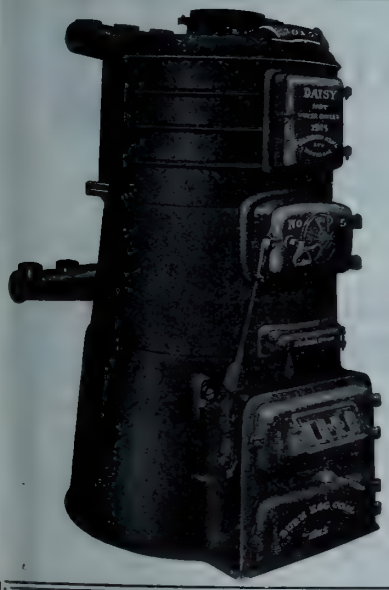
Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.

Send for Catalogue

B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share ?



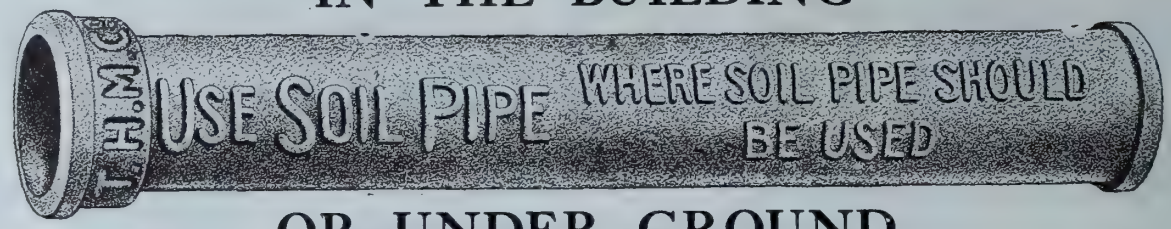
Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

WARDEN KING, Limited, Montreal

BRANCH OFFICE: 136 SIMCOE ST., TORONTO

IN THE BUILDING



OR UNDER GROUND

ASK YOUR JOBBER FOR T.H.M. CO. BRAND OF SOIL PIPE AND FITTINGS.

TORONTO HARDWARE MFG. COMPANY, - Toronto, Canada

WE MANUFACTURE A FULL LINE OF HIGH-GRADE RANGE BOILERS

TRIMO

The four good points that make TRIMO PIPE WRENCHES superior are the SPIRAL SPRING always in place, STEEL FRAMES that will not break, NUT GUARDS that protect adjustment nut and the INSERTED JAW in handle that can be replaced when worn.

The Trimo Steel Handle Pipe Wrench is also made in the 6", 8" and 10" size with narrow jaws and fine milled teeth, especially adapted for close work.

Your Jobber can Supply

Trimont Mfg. Company

Roxbury (Boston) Mass., U.S.A.

Wolverine Plumbing Fixtures

Wolverine Ball Flush Valves and Dale Ball Cocks are a tank combination that cannot be beaten, all our ball cocks are fitted with our patented removable porcelain seat and we furnish a 10 oz. solderless copper float. Our ball flush valve is fitted with Wolverine Sure Seat Tank Ball, all of which are Canadian made for Canadian trade. Send your enquiries to

WOLVERINE
LIMITED

12 Mercer St.
TORONTO
Ont.

The K-T FOUNDRY

Trade K—T Mark

GALT ONT.

STANDARD

Soil Pipes and Fittings are of pleasing design and good finish. They look good and they **are good**

SPECIALS

Range Boiler Stands are adjustable to 30-35-40 gallon boilers, and you can connect directly under the boiler. Inexpensive but flawless.

Your jobber can supply our goods--if you ask for them

Reduce Overhead Expense

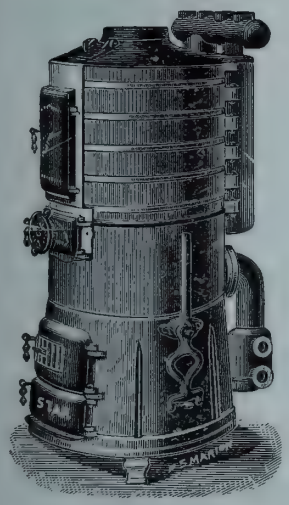
Allpriser Service

Don't trust to guessing your prices. It may cost you hundreds in a year. Know your costs; reduce your overhead expense, by taking the Allpriser Service.

Allpriser Service consists of a flexible leather bound book 7 x 9, of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest changes. Allpriser Service is only $25.00 annually.

Kenneth B. Allison, **668 Yonge Street, Toronto**

Thousands of Star Boilers in Use requiring repair Parts



It will be a long time before folks forget the coal troubles of the last few seasons.

The principal feature of the Star Boiler is that no other round hot water boiler has any coal-saving improvement not embodied in the "Star."

Then, too, while boiler installation and repair time is here, why not stock up with Star parts, for which O. Belanger has taken over the rights and is now making?

Many thousands of Star Boilers are in use requiring these repair parts hitherto unobtainable.

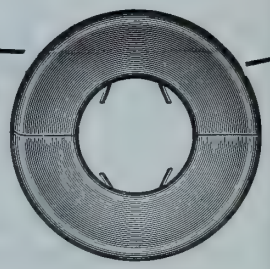
Write to us at once in time to catch the season's business.

We guarantee prompt deliveries.

O. BELANGER, REG'D.
Amherst Street
MONTREAL

OPEN VIEW
NO. 10-A

The CEILING PLATE that's better



TOP VIEW
NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾" WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

Gem No. 4.

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.

Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.
New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

Wrought Pipe

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Iron Co. Limited
Montreal

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 — PUBLISHED TWICE MONTHLY

Vol. XIV. — TORONTO, JULY 15, 1920 — No. 14

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The MacLean Publishing Company, Ltd.

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WE MANUFACTURE

LEAD PIPE

ALL SIZES UP TO 12 INCHES IN DIAMETER

Plumbers' Supplies

Quality and Service

Baths, Lavatories, Sinks, Solder, Aristocrat Laundry Tubs, Lead Pipe, Traps and Bends, Easy Wiping Solder, Iron Pipe, and Fitting, Sheet Lead, Block Lead, and All Brass Goods.

"Everything for the Plumber"

The Canada Metal Company, Limited

Fraser Avenue

Hamilton
Montreal

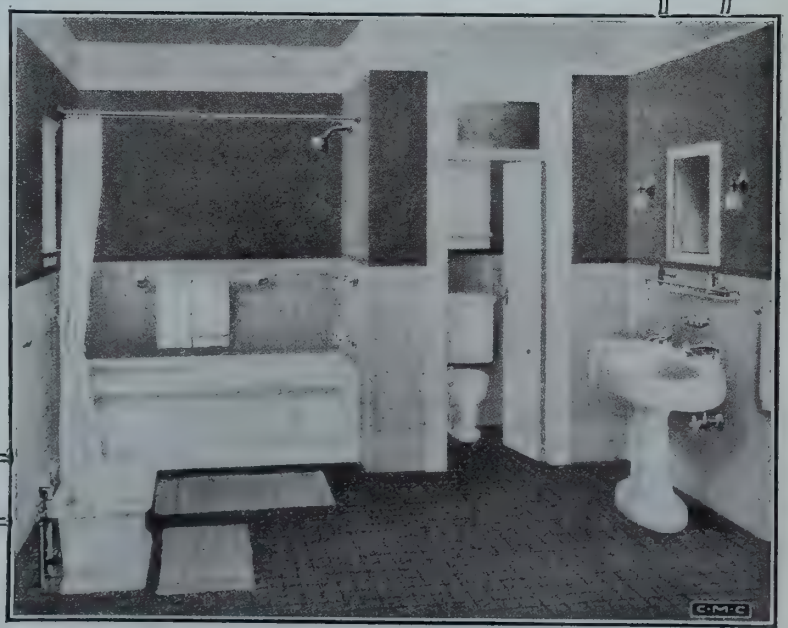
TORONTO

Winnipeg
Vancouver

Ask your Jobber for Easy Wiping Solder and The Aristocrat Laundry Tub

C.M.C.

THE MARK OF QUALITY



MID-SUMMER HEAT

A Little "Straight Talk" to the Canadian Plumbing Trade

The hottest days of summer should bring splendid assistance to the sanitary engineer. Away back in early history we have read about plumbers who looked upon the cold snaps of a severe winter as the great and happy harvest time, with bursting pipes and emergency repairs as the centre of attraction.

To-day a different condition holds sway. The summer days cry out for the comforts of shower-baths, and for all the other contributing helps to relief from heat. It may be too late to prepare these installations for the present season, but this is the time to bring their advantages home to the prospective buyer.

And as in the case of the doctor who does much of his best work in preventing disease, so can the sanitary engineer anticipate winter difficulties for his patrons by making certain that exposed plumbing is placed where frost cannot harm it, that systems are well equipped with shut-off appliances, so that the rigor of winter may not harm the domestic comforts so expensively installed.

The seasons can each carry their weight of propaganda for the man who is alive to the possibilities of his business. If he is a wise tradesman he will be careful to use only the very best materials and workmanship and always watchful of the motto—

"QUALITY, EFFICIENCY and SERVICE"

TRADE B.O.T. MARK

THE CANADIAN BRASS CO.
LIMITED
GALT, ONTARIO

CANADIAN BRASS GALT ONT

Established 1907 Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO, JULY 15, 1920 No. 14

Trade Extension Movement in Canada

Organization Similar to That of United States Would Do Much Good for Canadian Plumbing Trade—History of the Movement in Canada and Outline of the Benefits Which Would Accrue—President T. J. Minnes, of Ontario Society of D. S. & H. E., the Prime Mover—"'Tis Now Up to the Plumber Himself," Says Committee

TRADE extension along similar lines to the efforts being made in the United States for the improvement of conditions in the plumbing and heating trades, is a live subject in Canada. The question of closer co-operation between the plumbers and the manufacturers and supply houses was first broached at the annual convention this year of the Ontario Society of Domestic Sanitary and Heating Engineers. To that convention President T. J. Minnes invited representatives of the supply houses and manufacturers, and a thorough discussion of the matter ensued. It was early evident that there was no intention on the plumbers' part to take advantage of the situation, as had been done under similar circumstances in the past, and before long the spirit of co-operation which was engendered confirmed the hope that a new era was being entered upon. At another session of the convention William J. Woolley, representing the National Trade Extension Bureau of the United States, fully outlined the working of that organization, which is chiefly supported by contributions from manufacturers and supply houses. At the conclusion of Mr. Woolley's address every delegate felt that a simliar organization in Canada was the solution to the problem. It was therefore decided to appoint committees of the master plumbers and the manufacturers and supply houses, and this committee subsequently carried the plan forward.

President T. J. Minnes Outlines Situation

In order to get a clear understanding of what is meant by trade extension and how the organization might be expected to work in Canada, is best indicated in the following memorandum submitted by President T. J. Minnes to the subcommittee representing the supply houses, in order to give that committee something definite and tangible to work on:

"Gentlemen: The idea of trade extension, as it appears to me, is to create a public desire for more plumbing goods and installations, and particularly of a class that would be of greatest service to the public, thereby gaining a public confidence in the plumbing fixtures themselves, as well as in the men who sell and make installation of them. In the endeavor to create this demand it might be as well to standardize to a more or less degree; at the same time still maintain a classification of wares with a lesser variety, the idea being, of course, of doing away with the necessity of the manufacturing jobber having to carry such a wide range at a greater expense. This, in turn, would allow of the dealer to stock and show more plumbing goods at a minimum expenditure. For I think we will concede that the desire for an article is created by the exhibitor of the article with the suggestion of national and effective advertising.

"This, in my opinion, cannot be accomplished by any one faction pertaining to the plumbing industry, for, as we are aware, a chain is no stronger than its weakest link, and the weakest link in the direct marketing of plumbing fixtures to-day is the dealer himself, who is the medium or connecting link between the manufacturer and the consumer. The plumbing fixtures being marketed to-day are wholly through the

Natural Inclination of the Consuming Public

without any desire being created through suggestion. For instance—Is the phonograph a product of natural desire or inclination? the player piano, the automobile, luxurious rugs, dress, etc.? These are more or less luxuries. On the other hand, take the more or less essentials such as electric washing machines, the electric cleaner, refrigerators, or even water systems, if these articles were not nationally advertised, backed up by intelligently-trained salesmanship, there would not be sufficient natural desire for these commodities. Therefore they are being marketed by an acquired inclination or desire through the agencies above mentioned. Thus, it seems to me, the only way plumbing fixtures can be marketed by a creative desire is through the

Undeveloped Agencies

backed by advertising, direct to the creative sympathies of the prospective consuming public. The undeveloped agency is the so-called merchant plumber. Now, the one question to be solved is how to develop this agency. The answer is

Education

How is this to be accomplished? From close observation and experience it is my opinion that there must be a definite line of action mapped out, and this should be carried out energetically before launching a campaign of advertising to the creative sensibilities of the public. My suggestion would be along the following lines, which does not deal in detail but with the fundamnetal principles only.

(1) There should be a trade extension bureau formed, composed of the leading manufacturers and jobbers of the pro-

Continued on page 12

BD. OF HEALTH REJECT LONDON PLUMBING BY-LAW

London, Ont.—The plumbing by-law, as amended by the City Council, is not acceptable to the Provincial Board of Health, according to a notice received from that body by City Clerk Baker. The board takes particular objection to the elimination of the clause which compelled back-venting on certain amended the by-law because of the installations. The City Council general complaint that it had rendered the cost of plumbing in this city practically prohibitive. It was openly charged that the by-law was framed in the interests of the plumbers, and a special committee weeded out such clauses as were deemed useless and unnecessary. The local Board of Health accepted the by-law as amended.

How to Figure Out Profit

EXPERIENCE has proven that but few business men have learned to properly figure profit. Remember that 20 per cent. added to the cost does not yield 20 per cent. profit. Profit is properly figured on sales, and to make a 20 per cent. profit you must add 25 per cent. to cost. Keep the following schedule before you and you will find it worth many dollars in the course of a year:

5 per cent. added to cost is 4¾ per cent. profit on profit on selling price.
8½ per cent. added to cost is 7 per cent. profit on selling price.
10 per cent. added to cost is 9 per cent. profit on selling price.
12½ per cent. added to cost is 11⅛ per cent. profit on selling price.
15 per cent. added to cost is 13 per cent. profit on selling price.
16 per cent. added to cost is 14¼ per cent. profit on selling cost.
17½ per cent. added to cost is 15 per cent. profit on selling price.
20 per cent. added to cost is 16 2-3 per cent. profit on selling price.
25 per cent. added to cost is 20 per cent. profit on selling price.
30 per cent. added to cost is 23 per cent. profit on selling price.
33 1-3 per cent. added to cost is 25 per cent. profit on selling price.
35 per cent. added to cost is 26 per cent. profit on selling price.
37½ per cent. added to cost is 27¼ per cent. profit on selling price.
40 per cent. added to cost is 28½ per cent. profit on selling price.
45 per cent. added to cost is 31 per cent. profit on selling price.
50 per cent. added to cost is 33 1-3 per cent. profit on selling price.
55 per cent. added to cost is 35½ per cent. profit on selling price.
60 per cent. added to cost is 37½ per cent. profit on selling price.
65 per cent. added to cost is 39½ per cent. profit on selling price.
66 2-3 per cent. added to cost is 40 per cent. profit on selling price.
70 per cent. added to cost is 41 per cent. profit on selling price.
75 per cent. added to cost is 42 2-3 per cent. profit on selling price.
80 per cent. added to cost is 44½ per cent. profit on selling price.
85 per cent. added to cost is 46 per cent. profit on selling price.
90 per cent. profit added to cost is 47½ per cent. profit on selling price.
100 per cent. added to cost is 50 per cent. profit on selling price.

TRADE EXTENSION MOVEMENT IN CANADA

Continued from page 11

vince, and including all of the plumbers of the province who would be willing to register as a member of this bureau. It should then be in order to make a budget, the manufacturers and jobbers contributing according to their turnover in the plumbing goods. These manufacturing jobbers may have to be classified according to the variety of their lines of goods handled. There should then be an executive body appointed with a chairman, a salaried, managing, permanent secretary, and a treasurer (from the manufacturing jobbers). The executive would form the policy and advise the secretary, would be entrusted with the details and control what necessary clerical staff would be required in a central office devoted to the purposes of the bureau.

"(2) The merchant plumbers would divide the province into sections, or groups, and educate the members of the bureau along the lines required; amongst which would be the installation of a standard book-keeping system similar to the American Bureau Standard; educate salesmanship, the necessity of creating greater business by selling better and more plumbing goods, teach cleanliness of person and premises, deportment and business ethics. This work would be carried on under the guidance of the central office.

"(3) The manufacturing jobbers should have a monthly general conference of all travelling salesmen with the idea of imparting to them the ideas of the bureau, and should be addressed by speakers qualified along trade extension lines.

"(4) The central office to handle necessary advertising and supply suggestions to the architects' and builders' associations. Advertising is such a question that it would require the greatest care and attention with considerable thought, which could not be taken care of at this time.

"(5) Encourage merchant plumbers to dress show rooms and window displays; classify them and offer prizes for their efforts; encourage advertising individually or collectively, and encourage them to buy goods with the stamp of approval of the trade extensioin bureau; in the group advertising display only the names of those registered with the trade extension bureau.

"Send out a questionnaire of suggestions for the development of trade extension. Educate the members to buy in reasonable quantities only that they may not overload and sacrifice goods in order to unload or meet their payments, as these faults have a tendency to long credits and demoralizing trade. Endeavor to conform to and maintain standard prices. (Also have plumbing goods sold to the consumer through defined legitimate channels).

"If these ideas are carried out it will have a tendency of bringing the manufacturing jobber and the merchant plumber to a better understanding of one another's viewpoints, and a better feeling in the trade in general which, unfortunately, does not exist to-day, whether under misapprehension or otherwise.

"The foregoing is the principle, in my opinion, best adapted for the furtherance of trade extension, and, while there are many details that I have in mind, I hardly think it necessary to mention these as I believe it to be the duty of the executive and managing secretary to work out

"In short, I think it will suffice to say that it would be the duty of every one in connection with the movement to further ideas without selfish motives and to have in view at all times the betterment of trade conditions and the building of a greater and better business for the future.

"Sincerely yours,
THOS. J. MINNES."

Recommend Organization on Following Conditions

After considering fully the points brought up at the convention and investigating fully the operation of the bureau in the United States, the committee of the supply houses recommended favorable consideration on the understanding that certain conditions would form part of the proposed bureau. These conditions were that the proposed bureau would not be controlled or identified with any organization or association of manufacturers, jobbers or operators. That the bureau, if formed, would be under the control and supervision of a committee of five, the majority being representatives of the manufacturing or jobbing industry. That the proposed bureau would be in charge of a secretary or manager who shall be a salaried official and not a member of the committee, but who shall be held responsible for the proper administration, operation, and development of the organization. That a treasurer be appointed as member of the committee and a representative of the supply industry whose duty would be to act as comptroller of finances and sign cheques in payment of all accounts after they have been properly certified by the maanger. That a budget showing the proposed expenditures for the first year be prepared and receive the approval of the committee before any liabilities are incurred and such budget shall not exceed $7,000 for the first year. That the bureau shall be supported by voluntary subscriptions from the individual manufacturer or distributor. That the operation of the bureau shall be confined to Ontario for the present but with the consent and approval of the committee it may be extended to other parts of Canada.

These represent the conditions upon acceptance of which the sub-commtitee approve of the establishment of a trade extension bureau. The sub-committee consists of H. S. Harwood, The James Robertson Co., Ltd.; H. S. Wallace, Standard Sanitary Mfg. Co., Ltd.; F. M. Wilkes, the Canada Pipe and Steel Co., Ltd.; Fred Armstrong, Port Hope Sanitary Mfg. Co., Ltd.

Continued on page 32

Credits Important Factor in Plumbing

Ninety-five Per Cent. of World's Business Estimated to be on Credit Basis—Now on a Seller's Market—Tendency to Tie Up Fluid Capital in Fixtures and Buildings

"I am asked to discuss the general proposition of credits, and in doing so, I shall assume that credit is a necessary factor in the conduct of your business. It has been estimated that as high as 95 per cent. of the business of the world is done on credit in one form or another. Conditions which have prevailed during the past few years have materially reduced the volume of credit business and have shown that it is possible to eliminate a much larger proportion than has already been done," said G. G. Watson, addressing the 7th annual convention of the National Warm Air Heating and Ventilating Association in Cleveland recently.

"During the past few years we have been on what is known as a seller's market. The quantity of merchandise has been limited. It has been possible for those having merchandise for sale to select their customers and sell to those from whom the possibility of credit loss was reduced to a minimum. At the same time the amount of profit which has been realized by those who were fortunate enough to obtain ample merchandise has placed such merchants in position where they should be able, not only to meet their obligations promptly at maturity, but should have made them discounters or cash customers; and, if they have merchandised as successfully as it has been possible for them to do, they should now be in position to meet all obligations on practically a cash basis.

"Having for a number of years been in a rising market it has been easy for the merchant to realize a profit. The result has been that a great many who were formerly regarded as mediocre have now become successful merchants; at least they so regard themselves.

Putting Fluid Capital Into Fixtures and Buildings

There has been a tendency on the part of merchants who have been successful and have made substantial profits, either to enlarge their business unduly, speculate, or invest in real estate or securities, and only keep the normal volume of money in their active business accounts. They have been inclined to tie up what should be fluid capital into improvements, fixtures, increased buildings, and enlarged trade so that many merchants are now in actual danger, for by reason of so tying up their capital they will not have sufficient ready assets to enable them to ride down with the decline.

"This is, in my judgment, the particular time in which you should pay more careful attention to credits and credit conditions than you have ever done before. The merchant who is now a discounter, unless he has carefully preserved his increased earnings, will, on a declining market, become a term customer, and a term customer will become a delinquent. There is an ever-present temptation to speed surplus earnings; it may be to spend them foolishly; it may be to unduly increase the business; it may be to invest in securities or new buildings, or other forms of permanent investment, or, yet worse, to speculate on the market or wildcat in oil, thus placing the merchant's funds where they can not be realized upon quickly when money is needed. It makes little difference as to the manner in which the money is spent if it in fact is gone when the merchant needs it. I should, therefore, advise all houses to require their customers to adhere more strictly to their terms than they have ever done before, and I make this suggestion no more for the protection of you as manufacturers and jobbers than for the protection of the merchant.

Do Not Let Past-Due Accounts Accumulate

"At no time should I advise that past-due accounts be allowed to stand and accumulate, but particularly at this time should I urge the importance of most active attention to your receivables. When an account is due and your customer does not respond to your usual methods of collection, and remains silent despite your statement, your follow-up letter, and your draft, and certainly within thirty days or less, the account should have attention outside of your office routine. You may feel that it is safe and that you do not want to pay collection charges. If so, your secretary has a most efficient and inexpensive system of dealing with delinquent accounts, which is always available. If the pressure which his office brings to bear does not produce results, then you know positively that more drastic remedies are necessary. When you place an item of collection with your secretary, he should have authority to do with it whatever in his judgment the circumstances require, and should have the authority to pass it on for proper attention without the delay incident to obtaining especial instructions in each individual case. This practice will be less expensive to you at the end of the year than the lax one of allowing your cus-

KILL THE IDEA THAT PLUMBER IS A "ROBBER BARON"

A recent issue of the bulletin issued by the National Trade Extension Bureau contains the following editorial:—

"In view of the facts, as every one connected with the industry knows them, it is, of course, a great injustice that the plumbing and heating contractor should always be regarded as a rank profiteer. We all know that the public pretty generally holds the foregoing notion.

Nothing does more to keep this wrong idea alive than the frequent newspaper articles of that sort, which constantly appear. But some members of the plumbing and heating fraternity are equally blamable for doing things which have a bad effect in the direction of keeping this false idea alive.

The Trade Extension Bureau wants every plumbing and heating contractor to clip and send to us any newspaper items or other publicity unfavorable to the trade that comes to their attention. T. E. B. will then take the matter up with the publication at fault. Doing this consistently, it will not be long before a change will be noticed. In passing we might mention that T. E. B. has already successfully "Taken a Fall" out of "Collier's Weekly" on this subject, and is now writing to the "Philadelphia Inquirer" about a similar case.

"But while we are doing this with the newspapers, we fellows inside of the trade ought to clean house ourselves. Without thinking of the bad effect upon our own industry, some of us have been making use of individual slogans or sayings, which are bound to finally react unfavorably upon the business, and therefore upon every person in it. For instance, in one case there was a firm of enterprising plumbers who made use of the slogan, "We don't go back for tools," and another used "The Plumber with a Conscience." In both cases T. E. B. was successful in showing these men the probable bad effects upon their own business of the continued use of these slogans.

T. E. B. wants to make a real campaign with reference to the newspaper, etc., but we all must realize that the newspaper cannot be blamed a great deal for publishing matter unfavorable to the trade when individual members of the trade are guilty of doing the same thing. So, fellows, let's all get busy and clean our own house first. Wipe out, and get rid of, every slogan or saying which any individual is using, that suggests or invites any idea that is unfavorable to the business as a whole.

tomers' accounts to accumulate, and this will be particularly true in the year in which a sharp decline in prices comes. Since you do not know *when* that time will come, but you do know that it *will* come, eternal vigilance will provide the only element of safety.

Connection Between Credit and Sales Departments

"I am speaking of these two departments as separate institutions. In this I find myself falling into a common error, for the credit department and the sales department are so closely related that it should be impossible to tell where the domain of the one begins and that of the other ends. The successful credit man may be, and in many houses is, the star salesman. By diplomatic letter writing, and careful consideration of the customer's needs the credit man may increase or decrease the volume of business which the house may successfully do, or he may greatly interfere with the best-laid selling plans where the departments are not co-ordinated.

Get Full Credit Particulars

"Does your credit department inquire whether or not your customer is carrying insurance? Did he ever have a fire? Has he many or few competitors? Is his store well-kept, well-stocked and well-managed, or is it run down and his stock poorly arranged? Are his habits good or bad? For what purpose does he want an unusual extension of his line? Does he have a satisfactory home life, or an extravagant, irritating, nagging wife? Does he gamble, dissipate, speculate, horse-race, joy-ride, or is he attentive to his business and industrious in its management? All of these things your credit department should know, and can know by intelligently using the means which are now at your disposal.

"When production equals or exceeds consumption, when we change from a seller's to a buyer's market, when prices begin to decline, and the merchant must take his loss on goods which he has in stock, then the question of your credits will be of the utmost importance and the information which I have just detailed will be vitally necessary. While we do not know when prices will decline we do know that the surplus of a commodity over the demand is what fixes the price. Whenever production exceeds consumption the price is bound to decline. The natural law of supply and demand will immediately become effective and the extent of the surplus will determine the extent of the decline. Lower prices will come either from increased production or from the closing down of industry and the formation of the breadline. It is largely up to business concerns such as you represent to determine which way these lower prices will come. When the time comes, in the natural course of events, for prices to break it will be the men occupying positions similar to yours who will determine the manner in which the return to natural levels will be accomplished. If you are careful in your credits, if you are persistent in your collections, if you require your customers to live up to your terms, if you require him to keep his surplus in his business—some of which will have to be preserved to absorb the loss from the reduction of prices—then it may be possible for the decline of prices to come normally through increased production and careful merchandising. If, on the other hand, you allow your customer to depart from his terms, to dissipate the reserve which he should have by reason of the prosperous era, then you will find that bankruptcies will be frequent, that failures will be as common as they were in 1903 and 1907 and we will have the inevitable breadline.

Harmful Effect of Excess Profit Tax

"Some attribute the situation to the excess profit tax. It undoubtedly is now sapping the life out of initiative and enterprise, and is placing unwarranted and unnecessary burdens upon business in an attempt to pay an unreasonable proportion of the cost of the war in this generation. Whatever the cause of it may be we are in the midst of a situation which, while it is not a crisis, constitutes a very pronounced disturbance and will inevitably lead to a crisis unless proper measures of safety are taken by sound and sane business executives.

"The number of drives which were put on during the war for the multitude of purposes, the number of people who were enlisted in their support, the amount of conversation which has been held concerning the war, and the peace treaty and the league of nations, and the general slowing down of business which all these things have entailed, with the number of strikes which have occurred, have caused a tremendous economic loss. In England three million days of time were lost during the year 1919 by reason of strikes, and this capitalized at the average wage of $5.00 a day makes $15,000,000 which was lost to the workmen by reason of strikes and lockouts in that country alone.

The Sunnier Side of the Picture

But, there is a sunnier side. The world has not gone to pot, and is not going. We have abiding faith in our institutions, and we know that while we are going through a period of unrest, and of turmoil and of strife, that sometime—and let us hope at a very early date—the sun will shine again, and we will have the happy, prosperous and contented people that we had before the war. The world's greatest achievements have always followed periods of its greatest strife, and that will happen again.

"A prominent man, closely connected wth the War Industrial Board as an expert, in a recent address makes the positive statement that, aside from the loss of life during the war, which, of course, can not be replaced, restored or remedied, the business secrets, the engineering, expert and technical knowledge of all the world which has been placed in a common melting pot, has developed sufficient new ideas so that if capitalized they will within the next twenty-five years create in the United States twice the amount of dollars and cents of the whole expense of the war. He illustrated his statement by concrete examples of the development in electricity, air craft, chemical and scientific devices which may be applied to labor-saving and profit-producing in industry.

The Chief Problem is Increased Production

"Just now our problem is one of production. We must look the situation squarely in the face, and, with undaunted confidence, cool heads, willing hands and loyal hearts, we must set ourselves to the problem of restoring business conditions. In short, we must go to work, and, if possible to improve upon the expression, 'Let's Go" which has become so popular recently, let us add four words, "Let's go to work and produce."

SUBMIT QUESTION OF WATER SUPPLY

Chatham.—At a recent meeting of the Water Commissioners, it was decided to submit a referendum to the ratepayers of Chatham at the earliest possible moment asking them to decide between Lake Erie and the River Thames as the permanent source of a civic supply of water, with the understanding that the city council will apply to the Railway and Municipal Board for permission to issue debentures for raising money to carry into effect the scheme selected.

A few months ago it was decided to repair and extend the present filtration plant in this city, but at the meeting today it was reported by Engineer Proctor of Toronto, who is engaged on the work that the extensions proposed will only serve the city for two years, and it will take fully that long to get either of the two proposed new schemes into operation. There is said to be a strong feeling in the city in favor of the Lake Erie scheme. The only obstacle is the greater expense compared with the river scheme. It is estimated that Lake Erie water could be brought to Chatham for $700,000, while the erection of a new filtration plant on the Thames would cost $400,000. Engineer Proctor's report proves conclusively that the present plant is obsolete and beyond repair as a permanent plant to answer Chatham's future water needs. The present temporary alterations will cost $50,000.

London sanitary engineers are looking forward to an unusually busy fall as tenders are being called for new schools and additions to schools that will cost more than $1,000,000. In addition to this work construction is proceeding on a great many new residences of the better type.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

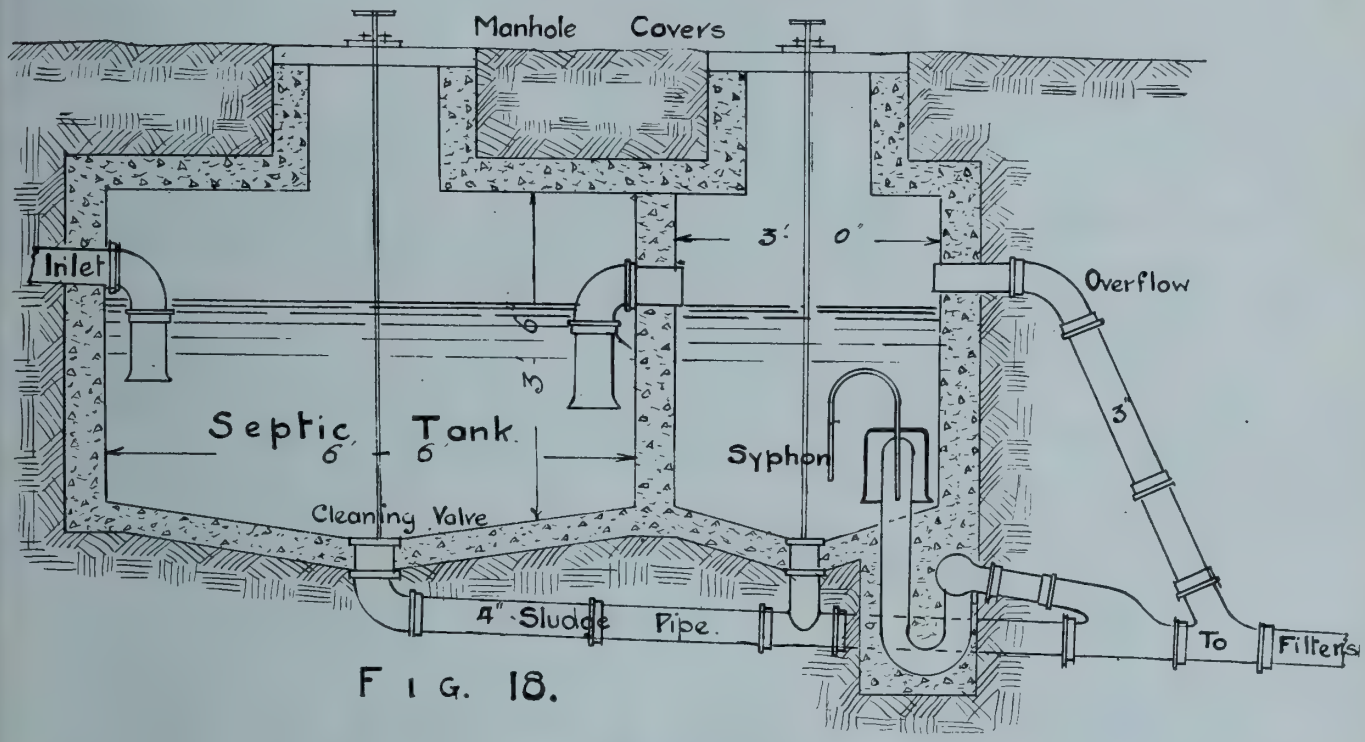


FIG. 18.

Article No. 12 of the Series—Illustration No. 18

(Continued from last issue)

ANOTHER type of septic tank, which is designed on a bigger scale for larger buildings, is illustrated in Fig. 18. The liquefying and syphon chambers are constructed on similar lines as previously described, the bottoms of each sloping to a central cleaning-out pipe connected to a sludge pipe, thus providing good facilities for emptying and cleaning out both compartments at any time.

A simple, effective and easily constructed septic tank for the use of a small family can be constructed out of 24-inch or 30-inch glazed vitrified sewer pipe. The pipes should be made perfectly watertight with neat cement joints and rest on a solid watertight concrete foundation. Great care must be taken in order to get the bottom of the pipes perfectly watertight, which can be best accomplished by bedding the pipes in fine concrete before same has permanently set and carrying the concrete wall up the sides of the pipes, which would be roughed up so as to provide a rough surface, ensuring better adhesion between the concrete and the pipe's surface.

Master Plumbers Reject Demands

Montreal Journeymen of International Union Presented Agreement Having Drastic Clauses —Employers' Association Has Agreement With Catholic Workers' Syndicate Recognizing Open Shops

MONTREAL.—The Montreal Master Plumbers report that conditions are quite satisfactory to them from the standpoint of labor. A recent report appearing in various newspapers would indicate that there had been considerable difficulty in connection with labor arrangements and Sanitary Engineer has made inquiry of members of the craft regarding existing conditions.

Want New Contract

The United Association of Plumbers, Steamfitters and Helpers has been asking the Master Plumbers to subscribe to a new contract by signing an agreement to embody the following outstanding features:

1. A forty-four hour week.
2. One dollar per hour.
3. Two dollars per hour for overtime.
4. Closed shop.
5. Freedom regarding strikes.

In the reply of the Master Plumbers they refer to the fact that a contract some months ago with the Catholic and National Workers' Syndicate which provides for a maximum rate of 75 cents per hour for skilled plumbers; hours of labor to be arranged between employer and employee; time and a half for overtime, and the principle of the "open shop."

Has Been Working Well

Sanitary Engineer understands that the arrangements which were made some months ago with the Catholic and National Workers' Syndicate have been working out very satisfactorily. Montreal Masters, as a rule, have always adhered to the principle of the "open shop" and this is one of the important points of contention on the part of those desiring recognition of the first-mentioned contract who want unions recognized. Under the arrangement made with the local syndicate, work has been conducted on a mutually agreeable basis, reports received by Sanitary Engineer would indicate. There are parts of Montreal in which some disaffection may exist, but in the main conditions have worked out agreeably.

In speaking this week with Capt. Dan. A. Bethune, president of the Montreal Master Plumbers' Association, he stated to Sanitary Engineer that conditions were quite satisfactory and perfectly o.k. as far as help is concerned. "We are getting the class of help we want and all that we requre," said Capt. Bethune. "The arrangements recently made with the Catholic and National Workers' Syndicate are working out very well and we are fully satisfied at the present time with these arrangements."

It would seem that difficulties which have always existed as far as the International Union is concerned continue much as before. The Montreal Masters made an arrangement as already outlined in Sanitary Engineer, with the Catholic and National Workers' Syndicate which seemed to both parties desirable. Beyond these arrangements the Masters have no desire to enter into agreement with other bodies, and there will no doubt continue to be a certain amount of dissatisfaction upon the part of officers of the International Union because agreements were not made with their body. Otherwise, arrangements and conditions appear to be quite satisfactory to a large number of journeymen as well as to the Master Plumbers generally.

ALLISTON M. H. O. TAKES ACTION

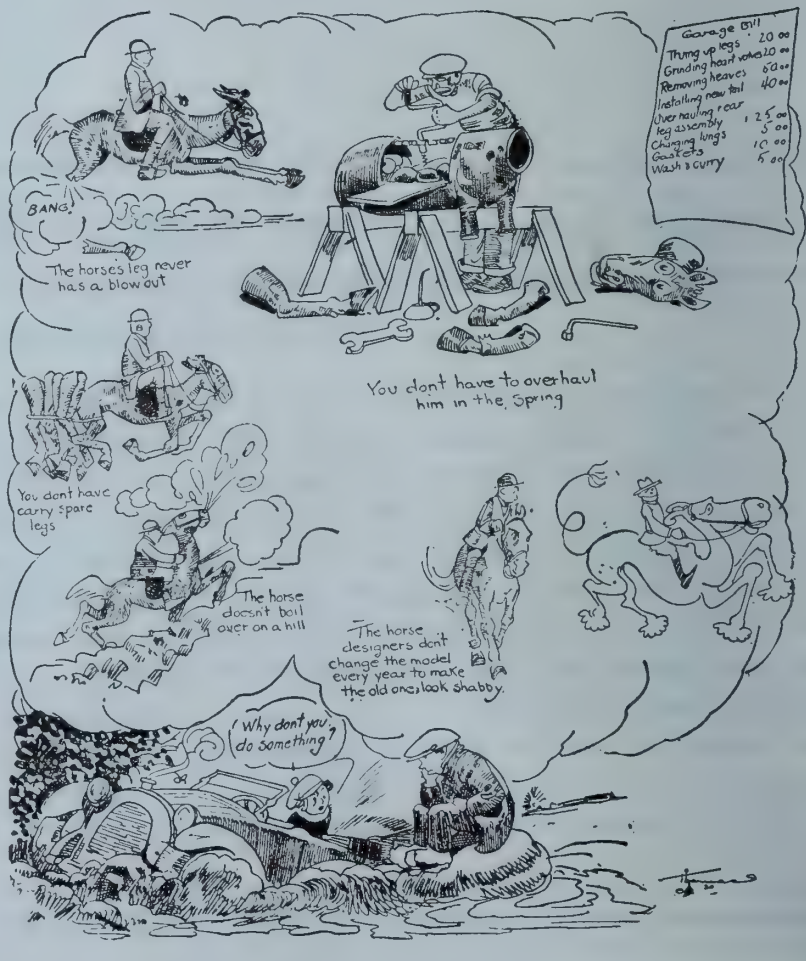
Alliston, Ont.—A complaint of an unlawful cesspool in such a location that neighboring wells would almost certainly become contaminated has compelled the medical health officer, Dr. J. J. Harper, to take action. The council undertook to deal with it about a month ago, and at last meeting deferred passing the by-law for a couple of weeks. Sewage disposal, however, is without the immediate jurisdiction of the municipal council and coming under the head of sanitation and public health the medical health officer has authority under the act. Dr. Harper has not hesitated to exert the authority vested in the health officer and the board of health and has forbidden absolutely sinking any more of these sewage disposal holes in town. The council will probably follow with a by-law empowering the sanitary inspector under direction of the proper authorities to order the abandonment and filling in of existing cesspools.

EVEN A FOOL

A farmer, just arrived in town, was walking across the street and happened to notice a sign on a plumbing store: "Cast Iron Sinks."

He stood for a minute and then said, "Any fool knows that."

When a Motorist Loves a Horse


Garage Bill
Truing up legs 20 00
Grinding heart valves 20 00
Removing heaves 60 00
Installing new tail 40 00
Overhauling rear leg assembly 25 00
Changing lungs 5 00
Gaskets 10 00
Wash & curry 5 00
BANG!
The horses leg never has a blow out
You dont have to overhaul him in the Spring
You dont have carry spare legs
The horse doesn't boil over on a hill
The horse designers dont change the model every year to make the old ones look shabby
Why dont you do something?

Personal Help for Plumber and Steamfitter

Traveling Men Being Sent Out by National Trade Extension Bureau to Do Personal Work—Interesting Development of Organization Which May be Copied in Canada—Personal Work Will Answer Many of the Most Serious Problems Confronting Plumbing Trade

AN interesting development of the work of the National Trade Extention Bureau will be the appearance of T. E. B. road men, who will personally visit the plumbing and heating contractors throughout the country.

These T. E. B. field men will first be chosen from among the men available who have the necessary knowledge of the plumbing and heating trade in a general way. They will be carefully instructed upon every branch of the plumbing and heating contractor's problems along lines of thought followed by the bureau. There road men will thus become competent business advisers for the plumbing and heating contractor on almost any possible problem that the contractor might be bothered with. They will be thoroughly posted upon T. E. B. methods of estimating, contracting, selling and accounting. They will travel constantly over the territory assigned them and personally bring to the local contractor the knowledge of T. E. B. advantages.

By personally visting the plumbing and heating contractor from time to time, these T. E. B. field men will be able to give the contractor the exact detailed methods of sound business management which will completely and safely solve his problems for him. This exactness of mutual understanding is, of course, frequently impossible at long range.

Visit Local Associations

It will be the duty of these T. E. B. field men to meet with, and visit the meetings of, local associations and contractors. At these meetings it will be their duty to make interesting talks on various phases of T. E. B. methods and work, with the idea of these talks being followed by a general and detailed discussion of the points brought out. It will also be the duty of these T. E. B. field men to collect and send in to headquarters detailed information of any new ideas or methods that they find working practically and successfully.

These T. E. B. field men will be put out on the road, covering various territories just as fast as the proper men can be found and employed. This is a proposition that is of absolute first interest to every element in the industry. Following is a summary of conditions of employment:

In the immediate future this bureau will employ men to represent T. E. B. in the various territories throughout the United States.

At this particular time recommendations are being sought from the trade direct, for the names of men who can qualify for such positions

Men are required who are reasonably familiar with the plumbing and heating business, men who can assist the plumbing and heating contractor in his business affairs and advise him on the many complex problems that normally arise in the plumbing and heating business. Men are wanted who, with a short training, will be competent to teach the plumbing and heating contractor T. E. B. system of estimating, accounting and selling.

These men must be able to give illustrated talks at Association meetings, and must be in a position to spend a greater part of their time away from home.

For the present they will be required to cover from three to five states, but this territory will gradully diminish as more men are added to the field force. All applications must be accompanied with the following information:

1. Give the names of at least seven contractors located in different cities to whom we can refer as to the ability of the applicant.
2. Give the names of at least three supply houses who are intimately acquainted with the applicant.
3. State the number of years associated with the plumbing and heating business.
4. State the nature of such affiliation.
5. State experience in making public talks.
6. State experience in accounting.
7. State experience in selling.
8. State age.
9. Married or single.
10. Home address.
11. Salary desired.
12. Present occupation

The function of these field men will be to thoroughly study and master all of the educational work conducted by the Trade Extension Bureau, and to make personal calls on all plumbing and heating contractors in their territory in order to explain to the trade any part of the trade extension work that the contractor does not thoroughly understand.

At regular intervals they will be required to give illustrated talks at headquarters of all local associations in their territory.

DECLARE PLUMBERS ARE MAKING STILLS

Plumbers have come in for a lot of abuse in their day, and now another crime is added to the list for which they are held accountable. The latest addition is that of making stills for the manufacture of whiskey. Read this report from Washington, D.C.:

Washington, D.C.—The plumbing business in Washington is at a standstill—with the emphasis on the still.

Any pipe that springs a leak these days is likely to keep on leaking up till the Volstead Prohibition Enforcement Act is repealed — which may be forever.

Plumbers are turning a deaf ear to the discordant drip-drip of faulty faucets. The mellifluos melody of sizzling solder making tight that which will produce stuff to make men also "tight"—that is the music to which they have dedicated themselves.

In plain "United States language," the plumbers of Washington are making stills. One master plumber said to-day all of his men had quit after one had reported that he had been earning $200 a week making the illicit apparatus for home use.

And meanwhile Washington leaks merrily on.

NEARLY ONE HUNDRED MEMBERS

Montreal.—Capt. Dan. A. Bethune, presiodent of the Montreal Master Plumbers' Association, stated to Sanitary Engineer this week that their membership now totals about 90 and that they have some excellent material within the association.

As this membership is made up of English-speaking and French-speaking members, and as conditions have been working very smoothly for a long time, the executive of the Montreal Association is to be congratulated on bringing these forces together for the common good of all.

Wit and Wisdom

A FISH STORY

The second course of the table d'hote was being served.

"What is this leathery stuff?" demanded the diner.

"That, sir, is filet of sole," replied the waiter.

"Take it away," said the diner, "and see if you can't get me a nice, tender piece from the upper part of the boot."

IT MIGHT BE WORSE

Flyver.—What's the most you ever got out of your car?

Second Ditto.—I think seven times in one mile is my record.

HE WAS POSITIVE

A young man consulted a physician about "tobacco heart," which he thought he had contracted by excessive smoking.

"Doctor," said he, "do you believe that the use of tobacco tends to shorten a man's days?"

"Do I?" exclaimed the doctor, "I know it does. I tried to stop once, and the days were 90 hours long."

Heating and Ventilating

Drafting for the Sanitary Engineer

THIRD ARTICLE OF A SERIES BY ANDREW LOUCKS

IN this article we are interrupting the course in mechanical drafting, so that we may take up the subject of making a measured drawing of some existing building.

To the novice in drafting, or to the man who has had no experience in trying to make a drawing after the sketch of some amateur, it might seem a simple thing to go to some building and record all of the notes that might be required by the sanitary or heating engineer. To get rid of such a belief, all that is required is the attempt to make working drawings with the assistance of the notes gathered by the haphazard methods of the inexperienced man.

As a matter of course, every draftsman learns by experience just what data he should take note of while making the survey, but in his early work he is as likely to waste time in recording useless measurements as he is to omit the essential ones.

It is because the beginner is so prone to rush into this class of work, without any thoughtful preparation, that we are now offering a few suggestions of how he should proceed in gathering the information required. And in doing this we wish to call his attention to the value of always considering while making the survey, that some one else may be called upon to make the working drawings from his sketches. If he keeps this thought in his mind he is not apt to trust his records to a treacherous memory.

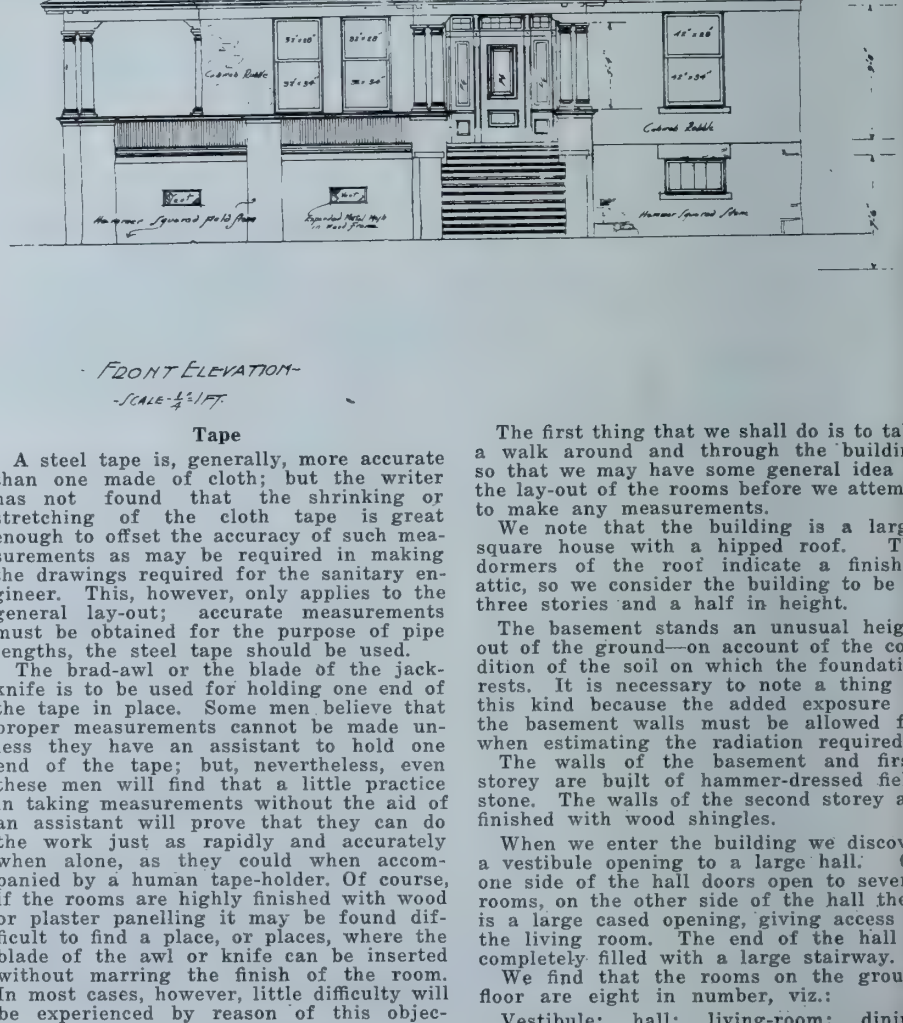
Materials

First of all the draftsman must gather up the materials he requires. He will need a soft pencil, paper, a 50-foot tape, a brad-awl or jack-knife, a six-foot extension rule, an electric flash-light and a spirit level.

Paper

Some draftsmen prefer to use paper that is ruled into squares in scales corresponding to one-eighth or one-quarter inch to the foot. The sketches when made on this kind of paper are usually drawn accurately to the scaled measurements; but as these sketches are not to be considered as working drawings, we believe that such exact work is simply a waste of time. The purpose for which the sketch is made does not require much more than the general lay-out of the building, accompanied by accurate figured measurements and certain details of construction. Therefore, we believe that perfectly plain paper is all that is required for such sketches. Another thing worth noting is that it takes a pretty skilful draftsman to make drawings on "section" paper; yet in the face of this scores of men will struggle and strive to count the lines on such paper while their assistant—if they have one—stands idly by with a tape measure in his hands. The writer had this experience until he consigned the section paper to a final resting place and made his sketches on an ordinary writing pad.

An eight by ten inch writing pad is a convenient size to handle, and will be found large enough for almost anything but a large detailed sketch.



FRONT ELEVATION
SCALE-½"/FT.

Tape

A steel tape is, generally, more accurate than one made of cloth; but the writer has not found that the shrinking or stretching of the cloth tape is great enough to offset the accuracy of such measurements as may be required in making the drawings required for the sanitary engineer. This, however, only applies to the general lay-out; accurate measurements must be obtained for the purpose of pipe lengths, the steel tape should be used.

The brad-awl or the blade of the jack-knife is to be used for holding one end of the tape in place. Some men believe that proper measurements cannot be made unless they have an assistant to hold one end of the tape; but, nevertheless, even these men will find that a little practice in taking measurements without the aid of an assistant will prove that they can do the work just as rapidly and accurately when alone, as they could when accompanied by a human tape-holder. Of course, if the rooms are highly finished with wood or plaster panelling it may be found difficult to find a place, or places, where the blade of the awl or knife can be inserted without marring the finish of the room. In most cases, however, little difficulty will be experienced by reason of this objection.

Measuring and Sketching

We are to consider that it is now our duty to carefully go over the entire building and make these sketches.

The first thing that we shall do is to take a walk around and through the building so that we may have some general idea of the lay-out of the rooms before we attempt to make any measurements.

We note that the building is a large, square house with a hipped roof. The dormers of the roof indicate a finished attic, so we consider the building to be of three stories and a half in height.

The basement stands an unusual height out of the ground—on account of the condition of the soil on which the foundation rests. It is necessary to note a thing of this kind because the added exposure of the basement walls must be allowed for when estimating the radiation required.

The walls of the basement and first-storey are built of hammer-dressed fieldstone. The walls of the second storey are finished with wood shingles.

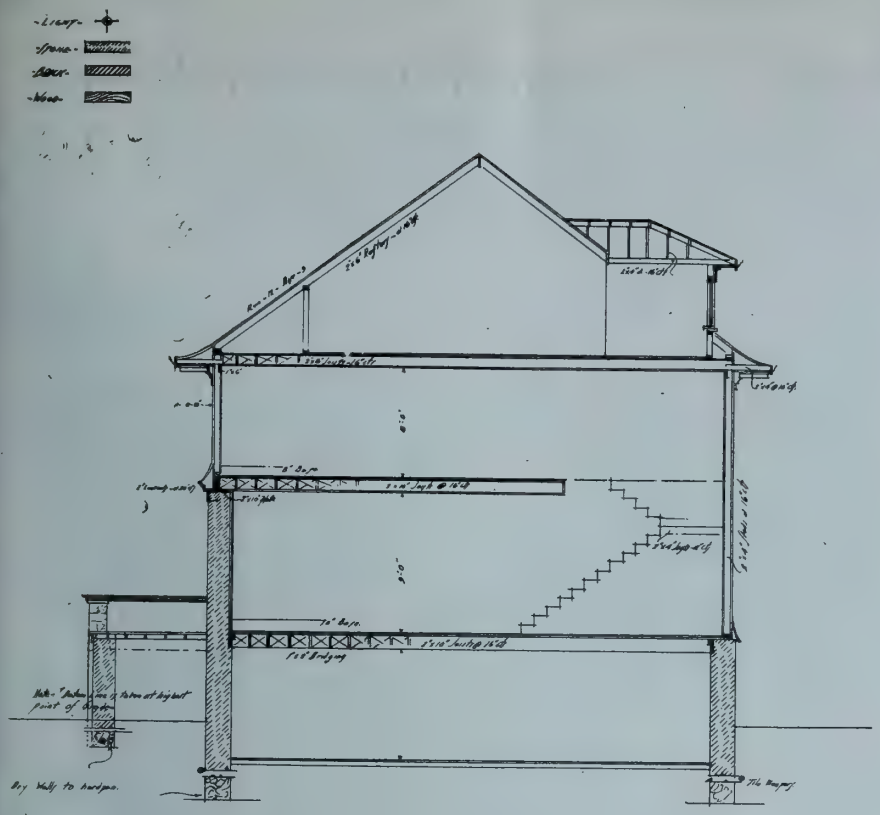
When we enter the building we discover a vestibule opening to a large hall. On one side of the hall doors open to several rooms, on the other side of the hall there is a large cased opening, giving access to the living room. The end of the hall is completely filled with a large stairway.

We find that the rooms on the ground floor are eight in number, viz.:

Vestibule; hall; living-room; dining-room; parlor; library; kitchen and pantry.

We then go up to the first floor and find four bedrooms, a bath, a toilet, stair hall, a rear hall and a stairway to the attic.

After roughly taking note of what rela-



CROSS SECTION
SCALE-¼"=1 FT.

tion the rooms of this floor bear to the rooms of the floor below we go on to the attic. We find here, in the attic, that the underside of the roof cuts into the ceiling of the rooms on this floor. We must take note of this, because the reduction in ceiling height does not alone reduce the cube of the room, but also adds to the wall exposure, which must be considered as a cooling surface.

The attic contains two bedrooms and a stair hall.

Now we go back to the basement and find there, the heater room, the fuel room, the larder, a root cellar, a laundry and a general storeroom. There is also a toilet under the basement stairway. The floor of the basement is cement. There are two main wooden girders, supported on square posts carrying the joists of the ground floor and the partitions above.

Now that we are in the basement we might consider that it would be just as well to start making our measurements here. But if we do it is more than likely that we shall hear some remarks about tracking dirt through the house. So we had better go back and start our measurements at the ground floor.

Before we make a single measurement we make the sketch.

It is not necessary to make the sketch to scale. All that we need do is to approximate the proportions of the rooms.

Vestibule

We start with the vestibule, where we note that this room is about three times as long as it is wide. We draw on our pad a rectangle in the proportion of three to one. We then note that a third of this room is cut off by a clothes closet. We make this division and set the entrance and vestibule door directly on the centre line of the remaining two-thirds of the width of the vestibule.

We make a note of the side lights on each side of the entrance door, and then go on to the hall.

The Hall

The hall is just the width of the vestibule and is in depth just about twice its own width. So, we follow the side lines of the vestibule back until we have a room defined in a proportion of two to one. The proportion of one corresponding to the entire width of the vestibule.

We mark on one side of the hall, the width of the cased opening. The width of this opening is just about the width of the hall, and note that one end of the opening is very close to the vestibule.

Opposite the large cased opening, two doors open to other rooms. We are careful to mark this door with relation to the position of the cased opening.

Farther back in the hall we note that the stairs commenced. The bottom riser of the stairs start at a distance from the vestibule of about one and a half times the width of the hall. The stairs are about one-third the hall width.

At one side of the stairs there is situated a vestibule between the kitchen and hall, and at the other side there is a small hall closet.

We make a note of the position of the door in the kitchen vestibule, and a note of the door to the dining room.

In locating the position of the doors a certain measure of care should be taken in proportioning them to some standard, because these doors will often serve as a key in establishing the relation that certain other rooms bear to the hall and vestibule.

Living Room

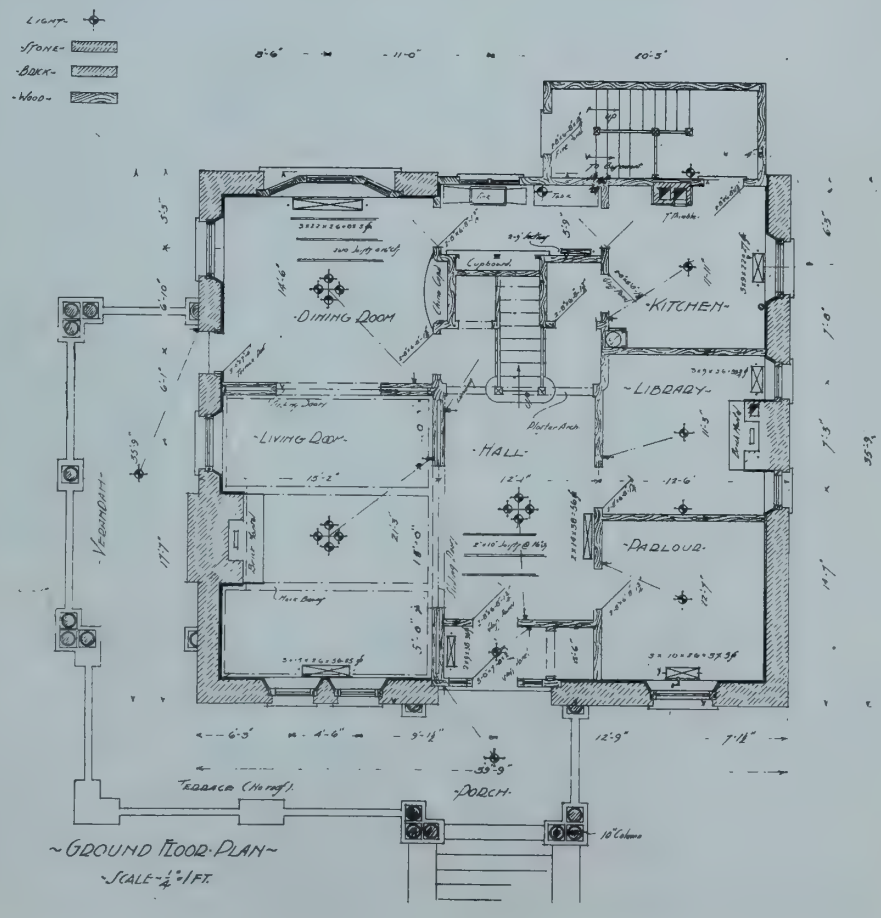
The cased opening is directly on the centre line of the length of the living room. The lines defining the length of the living room are the exterior wall and the partition that is in line with the first riser of the stairs. These two lines are already located, and the only defining line left now to indicate is that marking the width of the room.

The fireplace is set directly on the centre line of the cased opening in the hall partition. Its width is slightly more than half the width of the cased opening.

There is a window on one side of the fireplace. This window is set mid-way between the fireplace and the dining room partition.

The two front windows should be indicated on the drawings, also, in proportion corresponding to some of the other details already drawn.

(To be continued in next issue.)



GROUND FLOOR PLAN
SCALE-¼"=1 FT.

Advanced Legislation in Westmount By-Laws

Montreal Plumbers Called Into Consultation on Framing of City of Westmount Plumbing By-laws—Much Flouted Montreal By-laws Now in Formation Said to be Along Similar Lines—Westmount By-law Said to be Advanced Legislation by Montreal Plumbers

THE recently completed plumbing by-laws for the City of Westmount, Que., have now been adopted. At the recent annual convention of the Canadian Society of Domestic Sanitary and Heating Engineers, D. A. Bethune and other Montreal delegates stated that the by-law for the Montreal city, now being formed, would be much along the same plan as those adopted for Westmount. Plumbers of the City of Montreal were called in for advice on these by-laws before their adoption and they are looked upon as a very advanced piece of legislation. In view of the unrest prevailing in various parts of Canada in connection with local plumbing laws, a copy of the by-laws now in effect in Westmount, based on the advice of local plumbers, is reproduced herewith:

CITY OF WESTMOUNT, QUEBEC.

By-law No. 338

CONCERNING PLUMBING AND DRAINAGE

Section 1

1. The City Engineer shall exercise the functions of Plumbing Inspector and the powers delegated to him by this By-law.

2. The Plumbing Inspector shall be charged with the enforcement of the provisions of this By-law. He shall examine all drainage and plumbing construction in buildings erected or in the course of erection and shall keep a record describing the construction and installation of all drains.

3. Whenever the Plumbing Inspector is informed or believes that the drainage system in any building is being constructed, altered or repaired or is in a defective or insanitary condition, he may enter and examine any such building or any part thereof.

4. Before commencing the construction, alteration or repair of any part of the drainage system in any building, the owner, agent, architect or plumber, or other party interested, shall apply for a permit therefor from the Plumbing Inspector. No such permit shall be granted until the applicant shall have deposited with the Plumbing Inspector a plan and section showing the house drains and sewer connection. If the ordinary building plan and section is submitted, the house drains and sewer connection shall be shown in red thereon.

5. No such plans or section need be filed before obtaining a permit for minor repairs or alterations to any drainage system, provided that such repairs or alterations, when completed, do not amount to more than 20 per cent. of the cost or value of such system.

6. If the Plumbing Inspector is satisfied that the work will conform to this By-law, he shall issue a permit as herein provided for. If he is not satisfied that the work will conform to this By-law, he shall refuse to issue a permit and report his reasons to the Council.

Every such permit shall be transferable and shall expire and become invalid at the end of six (6) months from its date, unless the work has been commenced within that period and continuously carried on to completion.

7. When a permit is issued, a card will be supplied by the Plumbing Inspector, which must be posted and maintained in a conspicuous position on the building in which the work is to be done.

8. The following charges are hereby authorized to be made for plumbing permits:

(a) For any alteration or installation or additional fixture is to be erected ....$	.25
(b) Where not more than two fixtures are to be erected	.50
(c) Where not more than four fixtures are to be erected	1.00
(d) Where not more than ten fixtures are to be erected	2.00
(e) Where not more than twenty fixtures are to be erected	4.00
(f) Where not more than thirty-five fixtures are to be erected	6.00
(g) Where not more than fifty fixtures are to be erected	8.00
(h) Where more than fifty fixtures are to be erected	10.00

9. When the Plumbing Inspector has ascertained by means of any test or examination that the drainage system in any building is defective or insanitary, he shall serve the owner or his agent with a notice in writing to repair such defect or restore such system to a sanitary condition in a manner to conform to the provisions of this By-law within two (2) days after service of such notice. If the owner or agent shall fail or neglect to repair such defects or to restore such drainage system to a sanitary condition within the time stated in such notice, the Plumbing Inspector may cause such defects to be repaired or the drainage system restored to a sanitary condition and the city may recover from the proprietor the cost so incurred. If the existing drainage system of any building is such that it does not admit of a proper test being applied, the owner of such building or his agent, upon being notified by the Plumbing Inspector to do so, shall immediately provide a testing eye, installed to the satisfaction of the Plumbing Inspector.

10. If any person shall construct, alter or repair the drainage system in any building otherwise than in compliance with the provisions of this By-law or with the plans submitted to and approved by the Plumbing Inspector, or shall fail or neglect to carry out any order or directions given by the Plumbing Inspector in respect of any such work, the Plumbing Inspector shall serve the owner, agent, architect, plumber or other party interested with a notice to remove such work and to comply with the provisions of this By-law within two days from the service of such notice. If any such person shall fail to comply with the notice so served on him within the time therein stated, he shall be deemed to commit an offence under this By-law.

Section II

11. For the purposes of this By-law, the following terms shall have the meanings assigned to them respectively:

(a) "Sewer" shall mean the common sewer in a street.

(b) "Sewer connection" shall mean that portion of the drain from the "house drain" to the "sewer."

(c) "House drain" shall mean all drains inside a building and extending three feet outside.

(d) "Soil pipe" shall mean any pipe above the "house drain" into which a watercloset is connected.

(e) "Waste pipe" shall mean any pipe above the "house drain" into which any rain water leader, drain or fixture other than a watercloset is connected.

(f) "Vent pipe" shall mean any pipe designed to prevent syphonage or back pressure or intended for the ventilation of the drainage system.

(g) "Fixture" shall mean any watercloset, sink, wash basin, bath tub, wash tub, floor drain, yard drain or other water-supplied convenience which is connected with the drainage system in any building.

(h) "Drainage system" shall include everything defined in paragraphs (b) and (g) inclusive of this article.

Section III

12. All work performed under this By-law shall be done in a thoroughly workmanlike manner and all materials used therein must be the best of their respective kinds and free from any flaw or defect, and must be satisfactory to the Plumbing Inspector.

13. All cast iron pipe shall be oiled and shall have the weight and maker's name cast thereon, and shall be of not less than the following weights for lengths of five feet, including the hub:

Underground	Lbs.	Aboveground	Lbs.
3 inch.....	48	2 inch.....	20
4 inch.....	65	3 inch.....	33
5 inch.....	85	4 inch.....	45
6 inch.....100		5 inch.....	65
7 inch.....135		6 inch.....	75
8 inch.....170		7 inch.....100	
10 inch.....225		8 inch.....125	
12 inch.....270		10 inch.....175	

14. All galvanized iron pipe (used for soil, waste or vent pipes) must be of not less than the following weights:

	Lbs. per foot
1¼ inch diameter for vents only	2.24
1½ " "	2.67
2 " "	3.61
3 " "	7.54
4 " "	10.66
5 " "	14.50
6 " "	18.76
7 " "	23.27
8 " "	28.18

15. For all galvanized iron pipe, the fittings must be of galvanized iron, recessed and properly tapped or threaded for the purpose of grading.

16. All lead pipes must be of not less than the following weights:

	Lbs. per foot
1¼ inch for flush and vent pipes.	2½
1½ inch for branch waste for wash basins	3
2 inch branch waste for kitchen sinks, bath and laundry tubs...	4
3 inch branch waste for slop sinks	6
4 inch watercloset bends and roof connections	8

17. All lead traps or bends must be of the same weight and thickness as the pipe.

Section IV.

18. No cesspool shall be permitted in connection with any drainage system, unless it is impossible to connect the house drain with the sewer in which case the Plumbing Inspector may authorize such construction as a temporary means of drainage. In such case, any cesspool must be at least 15 feet distant from any building, and must be constructed entirely of concrete or hard brick laid in cement mortar and having the inside faced with a layer of cement mortar, not

less than three-quarters of an inch thick with a smooth surface. As soon as it becomes possible to do so, the house drain shall be connected with the sewer and the cesspool must be thoroughly cleaned out and filled with fresh earth.

19. The part of every connection between the sewer and the property line will be constructed by the City of Westmount, as provided for in Section 8 of By-law No. 18.

No new house drain shall be connected with an old or used sewer connection, except with the approval of the Plumbing Inspector, and in no case shall the house drain be laid until the sewer connection is complete.

20. The drainage of every building other than a private garage shall be carried to the outside of the building and connected separately and independently with the sewer, but two semi-detached dwellings or any two adjoining dwellings in a terrace may have their two sewer connections united and carried directly to the sewer. A common sewer may be provided for more than two buildings, if it is laid in private property and approved by the Plumbing Inspector.

21. Sewer connections may be of vitrified tile pipe laid on a solid foundation. If laid on made or soft soil, they must be supported for their full length on a concrete foundation at least six (6) inches thick and two (2) feet wide.

22. When an existing house drain is of vitrified tile pipe and is found to be in a defective condition, it shall be replaced with extra heavy cast iron pipe.

23. Every underground house drain shall be not less than three (3) inches in diameter and shall be constructed of extra heavy "oiled" cast iron pipe and when lying on made or soft soil it must be supported for its full length on a concrete foundation at least six (6) inches thick and two feet wide.

24. Drains above ground may be constructed of medium weight cast iron pipe or galvanized iron pipe, and must be supported by brick or concrete piers or by suitable hangers not more than five (5) feet apart for cast iron and ten (10) feet apart for galvanized iron.

25. Every house drain and sewer connection must be as nearly direct and straight as possible and must have a fall of at least ¼ inch per foot. All changes of direction and branches must be made with Y branches and with one-eighth or one-sixteenth bends. A cleanout shall be placed at every change of direction and at the foot of each soil or waste pipe. Every cleanout must be of the same size as the pipe or drain with which it connects and must be accessible.

26. A testing eye in a Y branch of the same size as the drain must be placed immediately inside the foundation wall and it must have a properly screwed cap as described in Article 27. No branch or fixture will be allowed to connect with any drain beyond such testing eye.

Where the testing eye is more than 24 inches below the level of the floor, a manhole shall be constructed to permit of easy access thereto. Such manhole shall be of adequate size, determined by the depth of the drain and not less in any event than 20 inches by 30 inches.

27. Brass screw caps for cleanouts or testing eyes must be not less than ⅛ inch thick and must have a solid hexagonal nut not less than ¾ inch high by 1½ inch in diameter.

28. No trap or backwater valve shall be placed on any house drain, except by special permission of the Plumbing Inspector. Any such trap or valve must be of the full size of the house drain with proper cleanouts, admitting of easy access thereto, and any such trap must have a vent connected on sewer side of trap and carried up through the building to one foot above the roof.

29. All soil or waste pipes must be of "medium" cast iron, galvanized iron, brass or copper and must not be less than the following diameters, respectively:

	Inches
Main and branch soil pipes	4
Main soil pipes for waterclosets on 5 or more floors	5
Main waste pipes	3
Branch waste for kitchen sinks ...	2
Branch waste for slop sinks	3
Branch waste for laundry tubs	2
Branch waste for laundry tubs on house side of trap	1½
Branch waste for urinals	2
Branch waste for baths and wash basins	2

Lead pipe may be used for short branches but shall not exceed the following lengths:

2 feet of 1½ inch pipe
4 feet of 2 inch pipe
2 feet of 3 inch pipe
2 feet of 4 inch pipe

30. Where lead pipes are laid in cinder concrete they shall be protected by a coating of bituminous material.

31. All soil and waste pipes, when not used as rain water leaders, must be extended in full size to a point at least two feet below the roof surface, from which point they shall be increased at least two diameters by an increaser 9 inches long and carried through the roof not more than 12 inches.

32. No cap, bowl, or ben shall be affixed to the top of any soil, waste or vent pipe.

33. Waste pipes from baths or basins shall not connect with watercloset or slop sink lead bends, but must have separate connections with the soil or waste pipe.

34. Horizontal soil and waste pipes must have a fall of at least ¼ inch per foot.

35. All connections with vertical soil or waste pipes must be made through Y or TY branches. All connections in horizontal soil or waste pipes must be made through Y branches and 1-16 or 1-8 bends. Quarter bends shall only be permitted if no other fitting is practical, but will not be permitted in waste pipes less than three (3) inches in diameter from sinks. Double hubs, saddles, short reducers, and inlet connections without hubs are entirely prohibited.

36. All soil or waste pipes must be as nearly direct and straight as possible.

37. All joints in cast iron pipe must be made with picked oakum and molten lead, and so caulked as to be gas and water tight and the lead to be not less than 1 inch in depth.

38. All brass waste connections to fixtures must be made with screwed joints but slip joints will be permitted on the fixture side of traps.

39. All brass thimbles must be of the best quality of heavy cast brass and not less than four (4) inches long. Soldering nipples must be of the same weight as the iron pipe and of the same size as the brass or copper pipe.

40. All connections between lead pipes and brass or copper pipes must be of wiped solder joints.

41. Every outside leader when connected with the house drain must be properly trapped through an extra heavy cast iron trap which must be placed inside the building when possible. All inside leaders must be of cast iron or galvanized iron pipe.

42. Any inside rain water leader below the level of and less than 20 feet away from any window or similar opening, must not connect directly into the drainage system, but must discharge over a floor drain or similar fixture. No fixture shall be allowed to drain into any such leader.

43. Every connection in a rain water leader must be made of heavy lead or copper and properly jointed to the iron pipe by means of a caulked or screwed joint and made gas and water tight. Every rain water leader draining a hopper or flat roof must have a galvanized wire basket or similar device placed securely in the opening of each leader.

44. Any house drain with which leaders or roof pipes are connected shall be of not less than the following diameter and of the fall mentioned for the purpose of draining the areas mentioned in the following table:

4 in.	¼ in. fall	2,500 sq. ft.
5 in.	¼ in. fall	4,500 sq. ft.
6 in.	¼ in. fall	8,000 sq. ft.
8 in.	¼ in. fall	18,000 sq. ft.
9 in.	¼ in. fall	25,000 sq. ft.
10 in.	¼ in. fall	34,000 sq. ft.
12 in.	¼ in. fall	56,000 sq. ft.

45. Stable drains shall be not less than four (4) inches in diameter and extended the full size through the roof. The materials and workmanship shall be the same as provided for house drains and no stable drain shall connect with a house drain at any point inside the building.

46. All yard drains must be at least four (4) inches in diameter and all area drains at least three (3) inches in diameter.

47. Every drain in a garage, coach house, stable, yard, area or subsoil must be provided with a catch pit to prevent earth or other solid matter escaping into the sewer. The outlet from such catch pit shall be properly trapped with an "extra heavy cast iron" trap and connected to the sewer.

Section V.

48. Every building inhabited during the day or night must have at least one watercloset for every fifteen persons or fraction of such number inhabiting or habitually using such building. In places of public assembly, the number of waterclosets and the location shall be determined by the Plumbing Inspector.

49. In factories, workshops and public buildings, every watercloset and urinal apartment must have the entire floor and the walls to a height of six inches, made waterproof with tile or other impervious material.

50. All waterclosets must have a bowl of porcelain or glazed earthenware, having flushing rims, and must be so constructed as to be thoroughly washed out at each flushing. The seat or bowl must not be enclosed or supported by any woodwork.

Pan, plunger or washout closets are prohibited in new work or in replacing existing closets.

51. In all new work or alterations any watercloset shall not be set on a wooden floor, but shall be set on an approved floor slab of porcelain, enamelled iron or other material impervious to moisture. This slab must be at least one foot, six inches wider, and one foot, six inches longer than the base of the watercloset.

52. No watercloset shall be set on any floor flange until such flange has been set in place and inspected.

53. All urinals must be constructed of porcelain, glazed earthenware or enamelled cast iron.

54. Every watercloset and urinal must be flushed from a cister, having a capacity of flushed from a cistern, having a capacity of must be of porcelain or lined with not less than 10 oz. copper.

55. Watercloset flush pipes must not be less than 1¼ inches in diameter and urinal flush pipes not less than 1 inch in diameter. Flush pipe couplings must be of the full size of the pipe; no rubber connection shall be used.

56. Every flushometer must be supplied with rising lines at least 1½ inches in diameter and the branches must be at least 1¼ inches in diameter for waterclosets and ¾ inch in diameter for urinals.

57. All sinks must be of porcelain, glazed earthenware or enamelled cast iron with an integral back of the same material, and must be supported on metal brackets or on metal or porcelain legs, and any existing sink enclosed or supported by woodwork shall not be repaired or renewed, but shall be replaced by a fixture as above described.

58. All wooden draining boards must be detachable for cleaning purposes.

59. All baths must be of porcelain, glazed earthenware or enamelled cast iron and any

Continued on page 30

EDITORIAL COMMENT

ELIMINATE "ROBBER" REFLECTION ON OTHER PLUMBERS

DEFINITE steps to eliminate the handicaps which have shadowed the plumbing and heating industry through its operators being popularly known as "Robber Barons," are being taken by the Trade Extention Bureau of the United States. This is but one of the important matters dealt with by an organization of this kind, and indicates the value which the adoption of some similar form of organization will have in Canada. It cannot come too soon.

Two prominent journals in the United States are openly mentioned as being prominent in using editorial matter reflecting upon the plumbing craft, and action is being taken against these journals. However, a more important suggestion made by members of the Bureau is that plumbers clean house themselves to eliminate this evil. Mention is made of certain slogans used by some plumbers in advertisements which make capital of the popular misunderstanding to the detriment of others in the craft. The more mention of the matter only goes further to advertise the fact and it is better unmentioned.

"ONE OF THE MOST IMPORTANT JUDGMENTS EVER HANDED OUT TO THE MERCANTILE WORLD"

WHAT is characterized as one of the most important rulings handed out to the mercantile world by any court in Canada, is that made by the Board of Commerce in the case of the Wholesale Grocers' Association, of Hamilton, which was recently investigated. The judgment establishes that the manufacturer has the legal right to establish a selling policy and to refuse to deal with those who will not adhere to the terms of that policy. If he decides to deal only with wholesalers he may refuse to sell to others than wholesalers. If he decides to establish a fixed resale price for his goods and make it a fair price, he may refuse to deal with those who sell above or below that price. A combination of wholesalers would also be empowered to refuse to trade with a manufacturer who does not adhere to a policy which may be requested by the wholesaler. Traders are also permitted to associate for the purpose of advancing their mutual interests in any way except by doing something actually forbidden by law. The Combines and Fair Prices Act does not forbid mere agreement or combining on any matter, unless in the opinion of the Board of Commerce it is likely to operate to the detriment of the public; and whether it does so is a matter of fact which must be proved and established as such in the particular case.

Some retailers have thought that with the disruption of the Board of Commerce, owing to the resignation of its three members, the regulations enforced by the Board would be invalid, but such is not to be the case. Some of the resignations do not take effect yet for some time and meanwhile the Government is taking steps to deal with the matter, and the regulations such as that outlined above remain in effect.

CANADIAN MANUFACTURERS AND FOREIGN TRADE

ARE Canadian manufacturers resting on their oars commercially when they should be energetically pushing out for foreign trade? This charge is implied in a report of European trade outlook issued by the Canadian Bank of Commerce; it was emphatically made by Lloyd Harris as head of the Canadian trade mission to Europe; it has been echoed by a report to Sanitary Engineer that the special trade commissioner to Japan brought to Vancouver to address the C.M.A. convention received scant attention.

There never was a time when Canadian manufacturers had such an opportunity to enter the markets of the world. We have the raw materials and labor and organization speeded up by war efforts ready to take the trade offensive, while the great industrial nations of Europe are badly handicapped as the result of the physical effects of the war. Nor is it a case of taking advantage of their condition, but rather of assisting them in supplying their urgent needs. Trade won under such conditions is not likely to prove temporary. It will be much

harder to get when our industries are in need of it.

The conclusion that the public is drawing from this lack of interest on the part of Canadian manufacturers in foreign trade — trade which will help to reduce the burden of war— is that profitable business is too readily secured at home.

THE WAY OF RADIALS

MAYOR CHURCH of Toronto, wants to spend millions to build Radials to develop Toronto to a population of one million. The representatives of the surrounding towns and villages want them for the same reason. Neither explain from where the population will come. If the big cities are to be built up the population must come from the towns and villages. If the latter are to grow to the figures in Sir Adam Beck's fairy tales, the people must move from the farms. This is exactly what a Farmer-Labor Government does not want. The farmers want to keep the people on the farms and the city laborers do not want to increase local competition.

The back-bone of the towns and villages is the local business people and they certainly do not want to be taxed to send villagers to the city to do their shopping, or to reduce their local field by moving their population to the big cities. E. M. Trowern, Secretary of the Retail Merchants' Association makes this view very plain. He might have gone further and shown that having numerous happy and prosperous business centres near by makes rural life bearable. The absence of it is what makes Western conditions so hard. The U.F.O. speakers recognize this by the constant effort they are now making to interest the townspeople. With these facts in mind, one wonders just who are to be benefitted by the millions it is proposed to spend on Radial developments.

MANUFACTURERS SHOW DETERMINATION IN FACE OF DIFFICULTIES

FEW stories come in almost every week regarding the manner in which Canadian manufacturers are chasing material across the line. They quit months ago depending on letters, wires, telephone calls, or any such thing, and have substituted the more costly, but more certain, method of placing their own men at various points at the border and at the mills. In some cases the reliable truck is doing great service in getting material direct from the mills to the tracks where freight is moving in the direction of the Canadian border. It is an expensive way of doing business, and it is adding considerably to the cost in Canadian plants, but there is the poor option of doing this or trying to get along with dribbles coming in at the receiving end of the plant. The Canadian manufacturers are showing a spirit of determination that is commendable, and it speaks well for the future development of business in this country.

EDITORIAL NOTES

NEVER forget in the planning of window displays or in the buying of stock that it takes all sorts of people to make even your little business world, and that no two people of them all, perhaps, have just the same likes and dislikes. Buy with a thought of variety in mind. Put variety into your window displays.

* * *

"THE excess profits tax, never a revenue measure, is a penalty upon economy, upon conservative capitalization and upon quantity production. It never was intended to be a revenue measure. It is a cornerstone in the present intolerable price-structure and it should be repealed."—William B. Colver, member U.S. Federal Trade Commission.

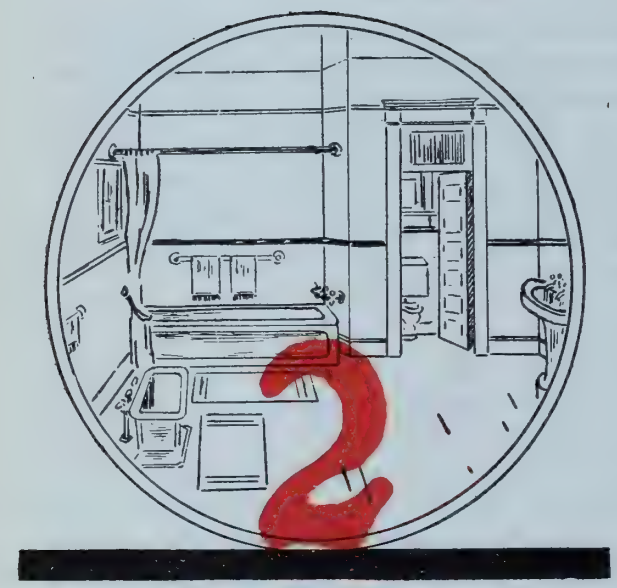
* * *

THAT THE "people with moderately large incomes in Canada are not paying the proportion which they should be made to pay," is an argument of the "Grain Grower's Guide" with which there will be general agreement by those with readily established incomes. This, however, is not so much the fault of the Income Tax as it is because of the difficulty of equitably enforcing its provisions.

* * *

THE early closing movement is meeting with a great deal of success, especially throughout the Western Provinces. In this as well as any other good cause there are always a few who are only too glad to take every opportunity to break the by-law. The latest comes from a Western city where apparently there are some merchants who have been doing business after closing hours by utilizing the telephone service. The city officials are putting through an iron-clad definition of the word closed which will leave no room for doubting its meaning.

The Home With
Is No Longer C



PROGRESS or growth of a plumbing business depends on the energy put behind it—depends upon the development of new business.

To-day the ideas of living are rapidly changing. There has been a gradual evolution from the days of our forefathers when the sanitary arrangements were crude, down to the present day when the idea of a bathroom and toilet for every bedroom is beginning to gather momentum. Those who travel know the comforts of putting up at first class hotels where all accommodations are available without leaving the room. This is ideal and should pertain in the private home to a more or less extent.

In discussing this point with a Toronto business man a few days ago he stated that he intended building a home with this one idea in view. Even in rural

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

nly One Bathroom sidered Modern

istricts some plumbers are putting in two baths and oilets in moderate size country homes.

More plumbing and better plumbing should be ncouraged by the plumber.

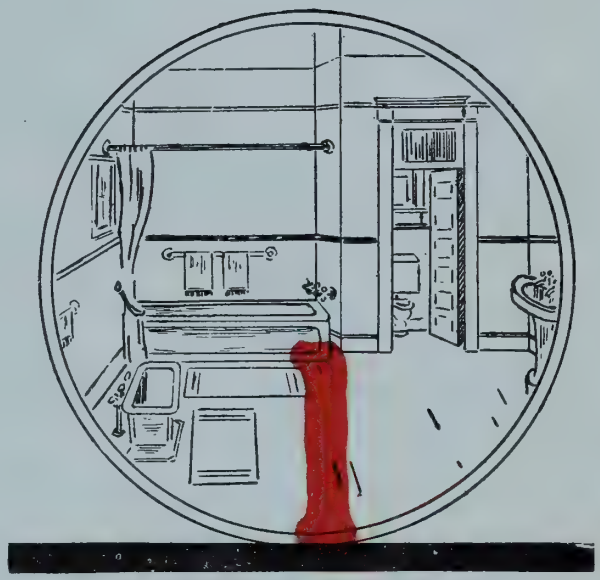
One of the main arguments in favor of two or ıore bathrooms in the home is the convenience.

The pleasure of knowing that no one is incon-enienced is a strong argument in favor of the idea.

The extra cost of installation adds so little to the otal cost of the building that few people who can uild their own homes would, if the matter was rought to their attention, hesitate to make provision n their plan for an extra bath and toilet.

Why not start the idea in your town?

Specify "Port Hope" Sanitary Enamelware when rdering from your jobber. Sell from "For the Home" booklet.



lfg. Company, Limited

Halifax Office:
CURDY BUILDING, HOLLIS ST.

Head Office:
ROYAL BANK BUILDING., TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

TENDERS

Hamilton.—Tenders will be received up to noon July 22 for plumbing work on two grandstands.

COMMENCED BUSINESS

Toronto.—William Newell, plumbing and heating contractor, has commenced business at 153 James Street.

BUSINESS CHANGES

Windsor, Ont.—Jones & Fletcher, plumbers, have been succeeded by Thos. Jones.

Ingersoll, Ont.—E. J. Holder, plumber, has removed his business to new premises on King Street E.

ATTENDED QUARTERLY CONVENTION

Montreal.—D. L. Scott, Montreal manager of the Canada Metal Company, and A. Roderique, G. Thompson and E. Lefrancois, sales representatives, with headquarters here, attended the quarterly convention of the company at the Toronto office last week.

PLUMBERS' SERVICES NOW WILL COST $1.40 PER HOUR

Toronto.—The Toronto Society of Plumbing and Sanitary Engineers have decided that $1.40 an hour will be the tariff for plumbers for the year commencing July 1.

"The former rate was $1.20 an hour. There has been an increase of 15 cents an hour to the men, and the general cost of operating made it necessary to increase the tariff to $1.40," said Mr. G. F. Frankland, secretary of the organization.

HAD AN OUTING

Hamilton. — On Saturday afternoon last week the plumbing and steamfitting contractors and members of local 67, Plumbers' and Steamfitters' Union, joined in a stag party at Nash's Grove. There was a large turnout of both employers and journeymen, and George G. Halcrow, M.L.A., Controller Chas. I. Aitchison, Controller Thomas O'Heir, and Hydro Commissioner Gordon C. Nelson, were also present.

Preceding a buffet lunch, ball games were played, the master plumbers defeating the journeymen plumbers, after which the journeymen steamfitters overcame the journeymen plumbers.—June 21.

MAJORITY FAVOR SEWERS

Todmorden, Ont.—In connection with the sewer and water campaign for the eastern section of York township, the petition committee reported recently that fully 90 per cent. of the property owners in Danforth Park, Eastdale, Woodbine Heights and Todmorden districts have signed the petition forms in favor of the conveniences.

The majority favor the installation by the York township council according to schemes submitted by the township engineers.

NEWS FROM LONDON, ONT.

The contract for the plumbing and heating of Emerson Nicholls new $12,000 home has been awarded to Charles West.

* * *

The Wright Teale Co. has been awarded the plumbing and heating for doctors' apartment being erected by Dr. A. E. Santo.

* * *

Eggett & Co. have the contract for plumbing and heating for residences which P. Murphy is converting into eight apartments.

* * *

Noble and Rich have been awarded the plumbing and heating work for the new school being erected in the suburb of Broughdale.

* * *

Williams and Roberts have been awarded the plumbing and heating for the new $15,000 residence, being erected by Edgar Jeffery.

* * *

Ben Noble, of Noble and Rich, spent a most enjoyable holiday at his summer home near Wiarton, and while there caught some fine strings of fish.

* * *

E. H. Russell, besides being a master plumber, is proving himself a master rose grower, and has in his garden a large number of exceptionally fine blossoms.

* * *

Another big job which promises much work in the coming months is the new sixteen storey hotel to be built by a local syndicate, of which George Reid is president. Tenders for the work will be called in thirty days.

* * *

Among the out-of-town jobs on which local sanitary engineers will figure is a $10,000 contract for new lavatories and new heating system for the public school at Alymer, Ont. Plans are to be prepared at once for this work.

* * *

Eggett & Co., who leased the premises adjoining their shop on Ridout Street, are busy remodelling the building, and when it is completed will have show rooms and work rooms, more than twice as large as the former shop.

LONDON SEEKING NEW WATER SUPPLY

London, Ont.—The Public Utilities Commission, in an endeavor to maintain the city's spring water supply, has secured a drilling outfit and has commenced prospecting for new artesian wells on the pipe line road near the second cove.

It is reported that there are large quantities of pure water available there and if the claim is substantiated it is the intention of the commission to forthwith install deep well turbine pumps on each well. No separate pumping station would be maintained at the field, the machines being equipped with remote control apparatus, the scheme having worked out in a satisfactory manner at the Foster wells.

WILL BE COMPETITION IN WORLD'S STEEL MARKET

In circles where the export business in steel is known the general belief is that Great Britain will not be the only competitor of the steel producers of America in the world's steel market.

Belgium, which heretofore exported 60 per cent. of her steel production, is now operating at 80 per cent of capacity and is exporting a large percentage of this output, and Germany is expected to become an important exporter of steel soon, as it can even now produce in excess of its domestic consumption. The same is said to apply to France.

The Japanese buyers are cancelling contracts and the outlook in the Far East is not reassuring. Another point which is made in connection with the prospects of steel exports is the fact that a number of heretofore importing countries are gradually getting into a position to take care of their own domestic needs. Australia, for instance, now is known to have sufficient rail capacity to meet her entire requirements. India is rapidly entering the same category.

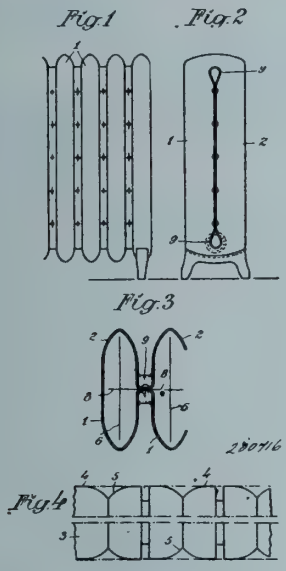
NEW CANADIAN PATENTS

(Issued for Plumbing and Heating Goods)

NO. 200,716, SHEET METAL RADIATOR

Olof Valfrid Cardell, Eskilstuna, Sweden.

A sheet metal radiator comprising sheet metal blanks each formed to provide half cell portions and connecting flat portions, the flat portions being formed at similar points with



outstanding rounded offsets and the blanks assembled and secured to register the half cells with the flat portions in contact and the rounded offsets registering to establish communication between the half cell portions.

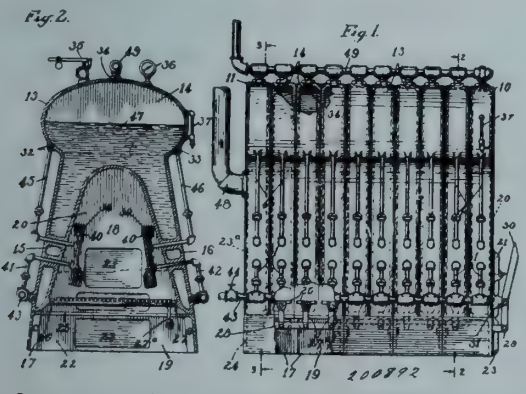
* * *

NO. 200,892, SECTIONAL BOILER

John A. Howard, Sr., West New Brighton, and Samuel T. Shaw, Jr., New York City.

In a boiler, a front section and a back section, each having a main water chamber supported upon two spaced walls with a hollow base portion so that when arranged whereby the spaces between the walls are in communication a firebox will be provided and the interior of the base portions will provide an ash pit, the main chamber of each section having an inlet and an outlet, the outlets being relatively arranged so as to be connected to a common distributing pipe and a pair of removable superheating chambers in the firebox of each section, each of said superheating chambers having an inlet leading from a source of water supply and having an outlet leading to the inlet of the main chamber.

In a boiler, a front section, a back section and an intermediate section, each having a main water chamber supported upon two spaced walls with a hollow base portion so



that when arranged whereby the spaces between the walls are in communication, a firebox will be provided and the interior of the base portions will provide an ash pit, the front section having a door leading into the firebox as well as having a door leading into the ash pit and the main chamber of each section having an inlet and an outlet, the outlets being relatively arranged so as to be connected to a common distributing pipe, and a pair of removable superheating chambers having an inlet leading from a source of water supply and having an outlet leading to the inlet of the main chamber.

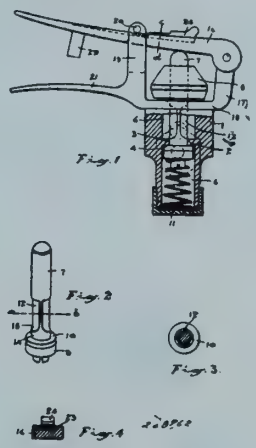
In a boiler, a front section and a back section, each having a main water chamber supported upon two spaced walls with a hollow base portion so that when arranged whereby the spaces between the walls are in communication a firebox will be provided and the interior of the base portions will provide an ash pit, the main chamber of each section having an inlet and an outlet, a movable grate between the firebox and the ash pit of each section, and a pair of removable superheating chambers in the firebox of each section, each of said superheating chambers having an inlet leading from a source of water supply and having an outlet leading to the inlet of the main chamber.

* * *

NO. 200,962. SELF-CLOSING TAP.

Harold Jarvis, Toronto. Ontario.

A self-closing tap comprising a valve casing having a cylindrical port therethrough and presenting a shoulder surrounding the port and a water pressure chamber having communication with the water supply, a piston valve constructed and arranged to be inserted into the port with a piston fit for the purpose of closing the same, means within the pressure chamber and acted upon by the water flowing into the tap for closing the valve, such means consisting of an enlargement of the valve adapted to engage the shoulder for trapping portion of the water with cushioning effect, and means whereby the valve is opened.



A self-closing tap comprising a valve casing having a cylindrical port therethrough and presenting a shoulder surrounding the port and a water pressure chamber having communication with the water supply, a piston valve constructed and arranged to be inserted into the port with a piston fit for the purpose of closing the same, means within the pressure chamber and acted upon by the water flowing into the tap for closing the valve, such means consisting of an enlargement of disc form and relatively large diameter and the said enlargement presenting a face adapted to make contact with the face of the shoulder for the purpose of trapping water, absorbing shock and preventing water hammer.

In a self-closing tap a pressure closed valve, a lever pivotally supported upon the valve body for opening the valve, a slotted lug with a pin carried rigidly thereby and extending across the slot at the top of the lug, said slotted lug having the lever projecting therethrough, and a movable member presenting different depths adapted to act between the pin and lever for holding the valve open.

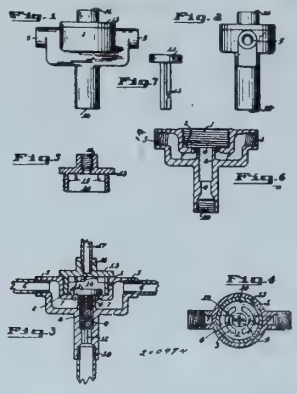
* * *

NO. 200,984. DRAIN VALVE.

Charles W. Newcombe, Tacoma, Washington, U.S.A.

A drain valve, including a casing having a substantially cylindrical head, provided with an interiorly threaded open

top valve chamber, and having at opposite sides thereof tubular extensions adapted to receive pipe connections, said casing being provided at the bottom of the valve chamber with a central outlet and having side passages extending from the tubular extension to the bottom of the valve chamber, and provided at their inner ends with enlarged terminals arranged concentric with the said outlet and extending nearly around the same and constitutes low pressure ports, a valve body operating within the valve chamber and covering, when closed, both the outlet and the enlarged terminals of



the side passages, a substantially cylindrical closure threaded into the valve chamber and provided at the top with a high pressure inlet and having interior lugs to space the valve body from the high pressure inlet, said closure being removable to afford access to the valve body without disturbing the pipe connections of the tubular extensions, and a spring for urging the valve body in opposition to the high pressure within the valve chamber, said valve body when raised by the spring establishing communication of the outlet with both the low pressure ports and the high pressure inlet.

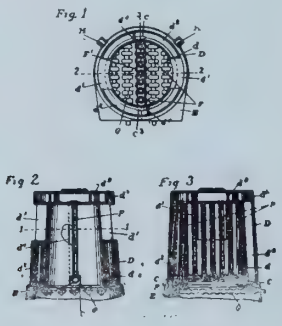
* * * *

NO. 200,993. BOILER FOR STEAM AND HOT WATER HEATING

Joseph Warren Piper, Lowell, Massachusetts, U.S.A.

A boiler having a fire chamber provided with a transverse division comprising a series of spaced water tubes, running from the top of said chamber downward and connected at their lower ends to a horizontal water tube having closed ends and arranged in proximity to, but far enough above, the fuel supporting surface to allow the lower part of the fuel to extend under said last-named water tube.

A boiler having a fire chamber provided with a transverse division comprising a series of spaced water tubes, running from the top of said chamber downward and connected at their lower ends to a horizontal water tube having closed ends, and secured against lateral displacement in said chamber and arranged in proximity to, but far enough above,



the fuel supporting surface to allow the lower part of the fuel to extend under said last-named water tube.

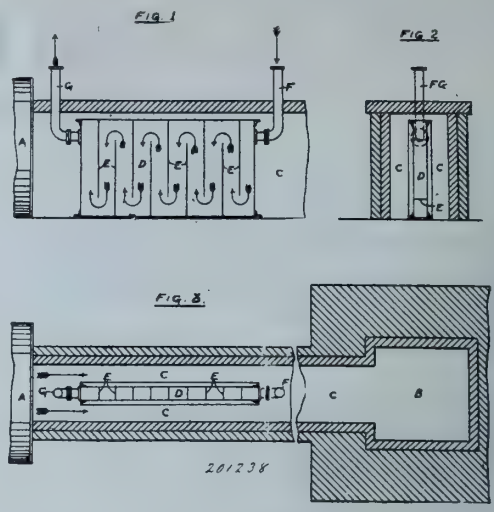
A boiler having a fire chamber provided with a transverse division comprising a series of spaced water tubes, communicating only with said boiler at the top of said fire chamber and supplied wholly with heated water from the body over the fire and connected at their lower ends with a horizontal water tube having closed ends and arranged in proximity to, but far enough above, the fuel supporting surface to allow the lower part of the fuel to extend under said last-named water tube.

* * * *

NO. 201,238. SYSTEM OF FIRING STEAM BOILERS.

John Arthur Yeadon, Leeds, County of York, England.

A device of the class described comprising a super-heater consisting of a narrow air tight rectangular chamber designed to be located in a boiler flue, baffle walls formed in two sets, one set depending from the upper wall of the chamber, and the other set extending upwardly from the lower wall of the chamber and only for a partial distance of the depth of the chamber, one set of baffle walls being staggered relatively to the other to form a tortuous passageway, an air inlet conduit at one end of the chamber, and an air outlet extending



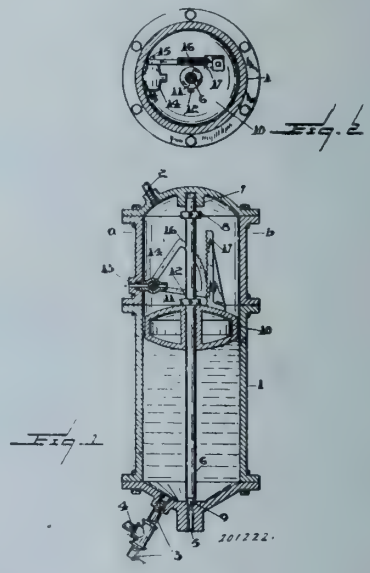
from the other end of the chamber and adapted to be connected to a boiler furnace, as and for the purpose specified.

* * * *

NO. 201,222. FEED WATER REGULATOR AND ALARM.

John Henry Stanton, Toronto, Ontario, Canada.

A feed water regulator and alarm for steam boilers comprising a tank adapted at its upper end for connection with the steam space of a boiler and at its lower end for connection with the water space of a boiler and having a water outlet at its lower end, a rod suitably guided to move vertically in the tank and having its lower end adapted to control the water outlet, a float slidable on the rod, a steam jet extending through the side of the tank, a cock within the tank con-



trolling the jet, and connections whereby the falling of the float below a predetermined level moves the cock to open the jet.

A feed water regulator and alarm for steam boilers as set forth in claim 1, in which a valve seat is formed at the inner end of the water outlet and the lower end of the rod is formed as a valve adapted to engage said seat.

A feed water regulator and alarm for steam boilers as set forth in claim 1, in which the tank is provided with a direct connection with a feed water pipe.

* * * *

NO. 201,030. WATER TANK

George T. Horton, Chicago, Illinois, U.S.A.

The combination with a water tank, heating device, and a flue extending upward through the tank and above the roof, of a float within the tank and in proximity to the flue, an indicator above the tank, and means connecting the float to the indicator to transmit the movement of the float to the indicator.

The combination with a water tank, a heating device, and a flue extending upward through the tank and above the roof, of a float within the tank and guided upon the flue, an indicator above the tank, and means connecting the float to the

(Continued on page 30.)

THE QUESTION BOX

DOMESTIC REFRIGERATING APPARATUS

Question.—Can you give me information on how to proceed to make up a simple domestic refrigerating apparatus which could be used in conjunction with an ordinary domestic refrigerator?—J. Forrester, St. Catharines, Ont.

Answer.—Practically all mechanical refrigerating machines use compressible gas, and obtain the cooling effect by first compressing the gas, then cooling the resulting liquid, and then permitting it to evaporate under reduced pressure. The evaporating coils run through a brine tank, where the brine is cooled to a point below the freezing temperature of the water. The cold brine is circulated through pipes distributed in the cooling chamber of the refrigerator.

The smallest mechanical refrigerating unit that we know of, and which will give satisfactory service, is one with a minimum capacity equivalent to eleven pounds of ice an hour. This is a capacity much in excess of the requirement for a household refrigerator.

A machine making eleven pounds of ice in an hour will use 06KW of electric energy in an hour, and 0.75 gallons of water in a minute.

Instead of using brine in the refrigerating coils, water from a well or from the city mains may be used, although the cooling effect will not be so great as with the brine pipes.

The degree of refrigerating service will be in direct proportion to the area of the cooling surfaces provided, the temperature of the feed water, the quantity of water used, and the velocity of the air passing over the cooling surfaces.

It is almost impossible to secure a satisfactory refrigerating system by the use of water coils without providing for a good circulation of air around the pipes and through the refrigerator. If it is possible to do so, a samll electric fan should be set to drive air over the cooling surfaces and through the refrigerator. Lacking the fans, vents must be provided to allow for as free a circulation of air as may be possible when depending upon the forces of gravity alone.

A tap should be provided at the end of the coil so that the waste of water may be controlled. The tap can be graduated to allow for a waste in proportion to the cooling effect required.

A drip pan should be set to catch the condensation gathering on the coils.

The ordinary household refrigerator will require about 12 linear ft. of 1 in. pipe.

CAPACITY OF RADIATOR

Question.—Being one of your subscribers I take the liberty of asking you some information regarding the new radiator (called the Victory radiator). Will you give me your opinion on figuring the said radiator. I have taken a contract to put up 25,000 feet of them. These radiators are giving 30 to 40 per cent saving on fuel after what I have seen. What I would like to know is the capacity of a radiator that contained: 100 ft. of 1¼ in. Shelby seamless tubing, gauge 20; 100 ft. of 1½ in. Shelby seamless tubing, gauge 20. The said radiator is made in a tube and very economical. What is the value of this 200 ft. of tubing in square feet?

A. A. Leverque, Montreal.

Answer.—Because we are not in possession of any data based on a scientific test of this type of radiator we can only form an opinion of its value by the performance of similar heating surfaces when installed under like conditions. We know that in forced hot-water heating systems the value of pipe coils is considered to be about 30% greater than that of a cast iron radiator. The greater heating value of the pipe coil is not only due to its provision for a more positive circulation than obtained in the cast iron radiator, but also because its heating surfaces offer little obstruction to heat-carrying air currents. When the pipes in a coil are massed, and when the speed of water circulation is reduced to that of a gravity system, the efficiency of pipe coils will drop to approximately that of cast iron radiation.

The "Victory" radiator, because of its construction, seems to provide for a fairly rapid water circulation, and as the air flues are large, we assume that the radiator when installed in connection with a gravity circulating system would show a heat-emitting capacity somewhere about 15 per cent. greater than a cast iron radiator. However, this opinion is based simply on assumption, and before we could come to any definite conclusion regarding the radiator it would be necessary for us to see some actual tests made.

It is worth noting that when tests have been made of radiators of large areas and small volume that short tests prove a very high heat-emitting efficiency, but that longer tests show a relatively lessening value. The worth of a radiator of this kind is, in our opinion, due much to its easy controlling properties, because of the small volume of water it contains.

With regard to the value of 100 linear feet of 1¼, and 100 linear feet of 1 in. Shelby seamless tubing, we may say that the 100 ft. of 1¼ pipe is equal to 43 sq. ft.; then 100 sq. ft. of 1 in. pipe is equal to 34 sq. ft., making a total of 77 sq. feet in the radiator.

As we are considering this radiator to be 15 per cent. more efficient than one made of cast iron, we may conclude that this 77 sq. ft. of the "Victory" radiator is equivalent to 88.5 sq. ft. of the standard radiator of cast iron.

LENGTH OF PIPE TO EQUAL SQUARE FEET OF RADIATION

Question.—If 3 feet (lineal) of 1 inch pipe equals 1 sq. ft. of surface, what length of the following will equal 1 sq. ft. 1¼ in., 1½ in., and 2 in.?

A SUBSCRIBER.

Answer.—The length of pipes of various sizes to equal one square foot of radiation are:

2.9	lineal ft. of	1	in.	pipe	equals	1 sq. ft
2.3	"	" 1¼	in.	"	"	1 sq. ft.
2.0	"	" 1½	in.	"	"	1 sq. ft.
1.6	"	" 2	in.	"	"	1 sq. ft.
1.32	"	" 2½	in.	"	"	1 sq. ft.
1.09	"	" 3	in.	"	"	1 sq. ft.
.95	"	" 3½	in.	"	"	1 sq. ft.
.84	"	" 4	in.	"	"	1 sq. ft.
.68	"	" 5	in.	"	"	1 sq. ft.
.57	"	" 6	in.	"	"	1 sq. ft.

TO SAFEGUARD MONTREAL WATER SUPPLY

Montreal.—The Montreal Water Board is taking active steps to provide against emergencies in connection with the city water supply. With this end in view two dams are being built, one of them 20 feet high by 160 feet in length, and the purpose of this will be that of holding back water and turning it into a lateral conduit connecting with the pumping station and filtration plant. Another dam will be built 500 feet above the pumping station and will be divided as precautionary in case anything should go wrong with the remainder of the aqueduct, and this provision would take care of supply in case of an emergency.

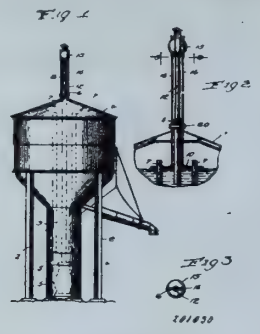
In addition to the above three bridges are contemplated as part of the above plan.

THAMES WATER HAS LOW BACTERIA COUNT

London, Ont.—The London Institute of Public Health has submitted to the Public Utilities Commission the results of several analyses made of samples of river water taken from the north branch of the Thames river. While the water is not completely free of colon bacilli, the bacteria count is very low. The commission is pumping water from the river for test purposes at the rate of 200,000 to 300,000 gallons per day, and it is thought from results obtained thus far that, as the pumping proceeds, the contamination will entirely disappear. If it should become necessary to turn the river water into the mains, the commission has prepared a chlorination plant to purify it.

indicator to transmit the movement of the float to he indicator to transmit the movement of the float to the indicator.

The combination with a water tank, a heating device, and a flue extending upward through the tank and above the roof, of a float within the tank and in proximity to the flue, an



indicator above the tank, a support connecting the float to the indicator to transmit the movement of the float to the indicator, and means to guide said support.

* * * *

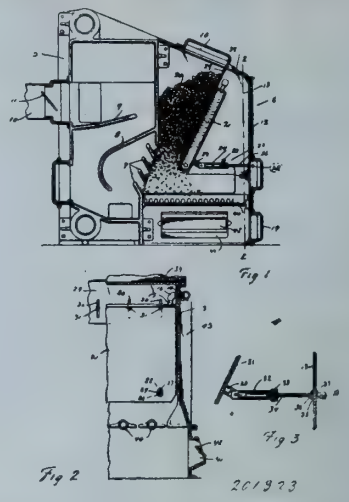
NO. 201,323. ADJUSTABLE WATER FRONT FOR BOILER FURNACES

The Thompson Heater Corporation, Buffalo.

A furnace comprising a vertically arranged fuel magazine, a suspended water front and an adjustable magazine plate secured to the top of the water front.

A furnace comprising a vertically arranged fuel magazine, a grate, a suspended water jacketed front, independent means for laterally adjusting the same, and an adjustable magazine plate secured to the top of the water front.

A furnace comprising a vertically arranged fuel magazine, a grate, a suspended water jacketed front, independent means



for laterally adjusting the same, and an adjustable magazine plate secured to the top of the water front, comprising telescoping struts arranged between the water front and the front wall of the furnace.

ADVANCED LEGISLATION IN WESTMOUNT BYLAWS

Continued from page 21

existing bath, which is enclosed or supported by woodwork, shall not be repaired or renewed, but shall be replaced by a fixture as above described.

60. All wash basins must be of porcelain, glazed earthenware or enamelled cast iron and must be supported on metal brackets or on metal or porcelain legs, and any existing wash basin, which is enclosed or supported by woodwork, shall not be repaired or renewed, but shall be replaced by a fixture as above described.

61. No wooden washtub shall be installed or used in any building except restaurants, laundries, or bottling establishments. Washtubs of cement or artificial stone will not be permitted except to replace existing washtubs of the same material.

62. Any soda or drinking fountain, safe, refrigerator, or overflow from a cistern, must not connect directly into the drainage system, but must discharge over a properly trapped and vented sink, or other such fixture, not more than four feet above the floor.

63. The waste pipes from safes and refrigerators must be of galvanized iron and not less than 1¼ inches in diameter. Branches must be made by "T Y" or "Y" fittings, and carried up to the safe with a fall of not less than ½ inch to the foot. Cleanouts must be provided to control the horizontal part of the pipe.

64. In all buildings where refrigerators from separate establishments connect with a common waste pipe, such pipe shall be carried through the roof.

65. All fixtures other than waterclosets must have strong metallic strainers or bars over the outlets to prevent obstruction of the waste pipe.

66. Overflow pipes from fixtures must, in all cases, be connected on the inlet side of traps.

Section VI.

67. Every fixture must be separately trapped by a water-sealed trap, placed as near the fixture outlet as possible, and in no case more than two feet distant from such outlet.

68. The discharge from any fixture must not pass through more than one trap before reaching the house drain.

69. All traps must have a water seal not less than three (3) inches deep and must be self-cleaning. All traps other than bath traps must have a brass screwed cap or cover placed on the inlet side of trap or below the water level. Bath traps may have the cap cover placed on the sewer side of trap, if such cap or cover does not depend upon a washer or gasket to make it air-tight. Traps, which depend upon an interior partition, or chamber, or mechanism to form water seal, will not be permitted. Every trap must be well supported and truly set with respect to its water level.

70. No trap shall be placed at the foot of any soil pipe or waste pipe.

71. The size of every trap must be not less than as stated in the following table:

	Inches in dia.
Waterclosets	3
Slop sinks	3
Kitchen sinks	2
Laundry tubs	2
Urinals	2
Baths	1½
Wash basins	1¼
Other fixtures	1½

Section VII.

72. In all new work, all traps must be protected from syphonage and back pressure, and the drainage system must be ventilated by special vent pipes. No flue of any kind shall be used as a vent pipe.

All vent pipes must be of cast iron, galvanized iron or brass; lead pipe may be used for short branches, if not exceeding the following lengths:

6 feet for 1¼ inch pipe
5 feet for 1½ inch pipe
4 feet for 2 inch pipe
2 feet for 3 inch pipe

73. Main vent pipes venting not more than two traps, other than water closets, shall not be less than 1½ inches in diameter for all lengths not exceeding 35 feet; when exceeding 35 feet, the vent pipe shall be increased to one size larger. Main vent pipes, venting not more than two water-closet traps and not more than four traps of other fixtures, shall not be less than two (2) inches in diameter for lengths not exceeding 35 feet; when exceeding 35 feet, the pipe shall be increased to one size larger.

Main vent pipes, venting not more than three waterclosets and not more than six other fixtures, shall not be less than three (3) inches in diameter for lengths not exceeding 40 feet; when exceeding 40 feet, it shall be increased to one size larger.

Main vent pipes, venting not more than seven waterclosets and not more than fourteen other fixtures shall not be less than 4 inches in diameter for lengths not exceeding 70 feet.

Branch vents shall not be less than the following diameters:

	Inches
Waterclosets and slop sinks	2
Wash basins	1¼
All other fixtures	1½

No branch vent shall exceed 25 feet in length.

No main vent pipe shall be smaller than the largest branch pipe connecting into it.

74. If the trap of any upper fixture, which is separately connected with any main or branch soil or waste pipe carried through the roof, is not more than six (6) feet from such soil or waste pipe, such trap need not be vented.

75. All offsets or branches on vent pipes shall, wherever possible, be made at an angle of not less than forty-five degrees to the horizontal; where it is necessary to carry pipes on the horizontal, they will be permitted for a length not exceeding 10 feet provided that pockets must be placed at all points on such pipe where rust scale can collect.

Main vent pipes shall be connected at the bottom with the soil, waste or house drain in such a manner as to prevent the accumulation of rust scale.

Branch vent pipes shall be connected at the upper end with the main vent pipe at least one foot above the top of the highest fixture and at the lower end not less than six inches and not more than two feet below the crown of the trap.

Vent connections for waterclosets and slop sinks must be made from the branch soil or waste pipe just below the trap of the fixture so as to prevent obstruction. No waste pipe shall be connected between such vent pipe and the fixture.

76. Vent pipes may be connected with the adjoining soil or waste pipe at a point above the highest fixture when it is not used as a rain water leader; when vent pipes are carried through the roof independently they must be increased in diameter as required for soil or waste pipes.

77. Automatoc vents are prohibited.

Section VIII.

78. Every building containing fixtures which require flushing must be equipped with water service with a stop-cock or valve placed directly inside the wall through which the service pipe enters. The number of connections to apartments, tenements and flats shall be in accordance with By-law 234.

79. In all buildings except dwellings, rising lines must have a stop-cock or valve at the foot of each rising line. All stop-cocks or valves must be located where they are accessible at all times.

The water supply pipe to any fixture shall not be less than ½ inch in diameter.

Section IX.

80. No mechanical device shall be used to lift sewage unless it is approved by the Plumbing Inspector.

Section X.

81. A smoke test and a water test of the drainage system of every building must be made by the plumber to the satisfaction of the Plumbing Inspector.

82. The water test shall be made by the plumber when the roughing-in has been completed and before any part of the system has been covered or enclosed. The whole system shall be filled with water to the highest opening above the roof and the water shall remain in the system for a period of not more than two hours. Should it be required to apply a water test to any part of the drainage system separately, there must be a head of water at least five feet above all parts of the work so tested.

83. The water test will be made, when the drainage system (with the exception of fixtures) has been completed, by filling the whole system with water to the highest opening above the roof and allowing the water to remain in the system for a period of not less than two hours.

84. Within seven days after the completion of the plumbing work and before the building is occupied, the plumber must apply the smoke test. This test must be made with appliances suitable for the purpose and of a design approved by the Plumbing Inspector.

85. Every person, firm or company infringing any provision of this By-law shall be liable to a fine, not exceeding Forty Dollars with costs, for every such infraction, and in default of immediate payment of such fine and costs, every such person shall be liable to imprisonment for not more than two months but such imprisonment shall cease on payment of such fine and costs. If the infraction continues, such continuance shall constitute a separate offence day by day.

86. By-law No. 317 and all by-laws and provisions of by-laws inconsistent with this by-law are hereby abrogated and repealed.

DRAIN CONNECTION BY-LAW

By-law No. 18 concerning private drains and their connections with principal or common sewers:

Section I.

Every private drain shall be constructed and kept in good order at the cost and on the responsibility of the proprietors who shall use it in any manner whatsoever.

Section II.

Every private drain connecting property with any principal or common sewer shall be constructed or repaired either with brick or stone work, or tile work, or iron, or partly with brick and partly with stone, or tiles, or iron, or with any other materials which may hereafter be prescribed by the said Council.

Section III.

The Council shall have the power, in any case where they may be any principal or common sewer in any street or public road, to cause every owner of land adjoining such public street or road to make a sufficient drain from his house, yard or lot, whenever

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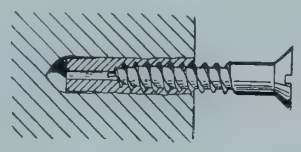
NEW PLUMBING GOODS

The Rawlplug Co.

The Rawlplug Company, Ltd., head office in Kensington, London, S.W., England, and represented in New York by Stadden & Company, are placing on the Canadian market the Rawplug, which they claim is a device for fixing screws in plaster, brick, marble, slate, stone, cement, concrete, metal, etc. It is for



The Rawlplug

use by builders, contractors, electricians, plumbers, engineers, etc., for any purpose for which a screw is used. The Rawlplug consists of a tube of stiffened fibres which automatically expand when a screw is driven into them, thus obtaining a firm hold. The plugs are made in various lengths and sizes for taking different sizes of screws, and no special screws are required. Steel plugging tools are also sold in connection with the plugs, they being used to make the required hole in the plaster, cement, brick, or whatever substance into which the screw is to be inserted. It is claimed that the Rawlplug requires no skilled handling, saves time and cost, does not damage surrounding decorations, leaves no unsightly wood blocks, and is an efficient plug for plaster. Tests carried out show various weights which can be applied to articles held by means of screws placed in the Rawlplugs. These graduate up to half a ton, which can be suspended on a screw hold in stock brick. It is stated that a great many English railway and public utilities, builders, contractors and electrical firms are using the plugs in large quantities with good success. The company plans to enter upon manufacture in America for this market and will shortly be establishing offices in Canada.

Resume Hearings of Combines Cases

Reorganized Board of Commerce Will Continue Hearings Already Under Way, But Will Not Commence Any New Cases Until Their Authority is Established

OTTAWA.—The new commissioners of the Board of Commerce held their first meeting this week to discuss future operations. It was decided, in view of the questions raised as to their jurisdiction to function under Part II of the Combines and Fair Prices Act, 1919, which deals particularly with hoarding and taking unfair profits on the sale of necessaries of life, not to institute of their own motion any new investigations with respect to these matters but to continue the enquiries already under way. This course was adopted so that valuable time may not be lost between now and the determination of jurisdiction by the Privy Council in preparation for public hearings.

The above statement, it is emphasized, is not to be understood to mean that if complaints of profiteering in necessaries of life be at any time received by the board, from any part of Canada, they will not be investigated. The Board of Commerce will take the usual steps to deal with these complaints, as the board takes the stand, notwithstanding the recent submission of its stated case to the Supreme Court of Canada now in appeal to the Privy Council, that it has jurisdiction to operate under the profit control sections of the Combines and Fair Prices Act, and it will deal with persons found guilty of such infractions of the act.

The Board of Commerce, the commissioners state, has unquestioned jurisdiction concerning the investigation and restraint of combines, monopolies, trusts and mergers which constitute Part I of the Combines and Fair Prices Act, 1919, and it is proposed to proceed with the hearing and determination of certain alleged combines cases, trial of which had to be postponed in April owing to the disorganization of the late board.

The first statement issued by the newly-constituted board, containing the above information, is signed by W. White, Chief Commissioner; F. A. Acland, and G. A. Dillon, commissioners.

NEW SANITARY INSPECTOR FOR HAMILTON

W. A. Tornley, Hamilton's new sanitary and smoke inspector, has arrived in the city from Winnipeg. He declares himself to be delighted with Hamilton, which he visited in 1914, while en route overseas.

Dr. James Roberts, medical health officer, has returned to the city after attendance at the City Medical Congress in Vancouver. It was the most successful convention he had ever attended, he declared, papers read being of particular interest to his department.

ADVANCED LEGISLATION IN WESTMOUNT BYLAWS

Continued from page 31

it may resolve that the same is necessary, the same to be constructed as far as the line of the said street or public road by the said owner or agent, the Corporation making the same from the said line of street or road and connecting the same with the said principal or common sewer, in the manner by it prescribed, at the cost of such proprietor, owner, or agent.

Section IV.

The Council shall give notice in writing, through the Secretary-Treasurer, to such proprietor or agent, specifying the time within which such drain shall be completed, and, in case of said owner or agent neglecting to complete the same within the time specified to the said line of street or road as aforesaid, the said Corporation shall cause the same to be done at the expense, costs and charges of the said owner or agent; in default the amount thereof may be recovered by action before one or more Justices of the Peace, or before the Circuit Court for the District of Montreal, and the said owner or agent shall be liable to the penalty imposed by Section XII of the present By-law.

Section V.

The Council or its officers shall alone have the right to open streets or roads, or principal or common sewers, for making the connections with private drains from proprietors, and shall also construct and repair private drains from the line of said streets or roads and make the necessary connections in the manner by it prescribed with principal or common sewers therein.

Section VI.

All private drains shall be laid in such directions, of such size, and with such descent, and, when required, with such strainers as the Council or its officers may require, and such drains shall not be closed under any pretext until examined by the said officers of the Council.

Section VII

The form, size and manner in which private drains shall be constructed shall be prescribed by the Council or its officers thereto duly named.

Section VIII.

The road inspector of the town, or other officer thereto duly named, is authorized and empowered to grant permission to persons to construct, at their own expense, private drains to connect with any principal or common sewer constructed on any of the streets or public roads as far as the lines of the said streets or public roads, the Corporation to construct a drain from the line of the street at the costs of such owners or proprietors, and making the connections with the said sewers, such permission to be subject to the following among other conditions: The persons applying therefor shall make a cash deposit, in the hands of such officer of the town, of the estimated cost of the said drain from the street or road line to the said principal or common sewers, and in the event of the costs of said work not amounting to the sum so deposited, any balance thereof shall be returned and no part of said drain shall, under any circumstances, be commenced until such deposit is made. No permits to be given for putting in or opening drains after the 31st day of October until the 1st day of April.

Section IX.

The Road Inspector or other officer thereto named by the Council shall have the right at any time to examine any private drain and shall report the conditions thereof to the Secretary-Treasurer of the town and, upon notice by the Secretary-Treasurer to the owner or agent of the owner of such private drain, the said owner or agent must repair the same within eight days from the service of such notice and in default thereof of the said Road Inspector or other officer, on being duly authorized by the Council, may make the necessary repairs, and the costs thereof may be recovered from the owner or owners or agent in the name of the town before one or several Justices of the Peace or before the Circuit Court of the District of Montreal.

Section X.

No proprietor or tenant on any street or public road in the town, in which there are principal or common sewers, shall be allowed to drain from their premises into such street or public road by surface drains. Where any such surface drain is being used the Road Inspector or other officer of the town, thereto authorized, may be empowered by the Council to compel the proprietor of the premises drained by such surface drains to remove or fill up the same, and in default of his so doing within the delay to be stated in the notice in writing to be served on him, remove the same at his costs and charges and recover the same according to law and make a private drain subject to the conditions hereinabove mentioned at his costs and charges and recover the same.

Section XI.

No proprietor or tenant on any street, public road or lane, in which there are principal or common sewers and water supply, shall be allowed to drain the premises owned or occupied by them into, or se cesspools or privies thereon. Where any cesspools are so situated the Road Inspector or other officer of the town may be empowered by the Council to compel the proprietors or agents to fill up the same and make connections with said sewers, as herein provided, by private drains, and, in default of their so doing in the manner and within the delay mentioned in the notice to be served on them by said Road Inspector or other officer thereto authorized and, in default thereof, to fill up the said cesspools and privies, and make said connections at their costs and charges, and to recover the same in the name of the town by action brought before one or more Justices of the Peace or before the Circuit Court for the District of Montreal.

Section XII.

Whoever may violate any of the provisions of the present By-law shall be liable for each violation to a penalty not exceeding Twenty Dollars ($20.00) and, in default of payment of said penalty within a fixed delay, to an imprisonment in the Common Gaol of the District of Montreal, for a period not exceeding thirty (30) days, the said imprisonment ending on payment of said penalty and costs.

That, moreover, the Council may, when it deems fit, cause any connection to cease between any private sewer and any principal or common sewer when the proprietors shall not have complied with the present By-law.

WATER SUPPLY BY-LAW

It is therefore ordained and enacted by By-law Number Two Hundred and Thirty-four (No. 234) concerning water supply in tenements, apartment houses and flats, as follows:

Section I.

In all cases where a tenement, apartment house, flat or other building is tenanted by two or more tenants, sub-tenants or families, the proprietor thereof shall provide for each such tenant, sub-tenant or family occupying separate apartments a separate and distinct service pipe for the supply of water to each such separate tenant, sub-tenant or family as in the case of single tenanted houses; and if the proprietor after being notified in writing to that effect by the City Surveyor, refuses or neglects to comply with the requirements of this by-law within a reasonable delay not to exceed fifteen (15) days, he shall pay when due the rates imposed for the water so supplied to the said tenants, sub-tenants or families which liability on the part of the proprietor shall continue so long as he does not comply with the requirements aforesaid.

Section II.

The enforcement of this by-law and all costs of notices and all expense of serving the same shall be at the cost and expense of the person or company supplying the water.

Section III.

Every person, Company or Corporation infringing any section of this By-law shall be liable to a fine not exceeding forty dollars ($40.00) with costs for every such infraction and in default of immediate payment of such fine with costs every such person shall be liable to imprisonment for not more than two months, but such imprisonment to cease on payment of said fine with costs. If the infraction continues, such continuation shall constitute a separate offence, day by day.

BRITISH ZINC

"Spelter is beginning to attract attention again, and the metal would now appear to be passing through one of those phases which are only too familiar to all who handle zinc," states "The British Metal World" in its current issue. "British smelters are in a very unenviable position, and, if all we hear is correct, it will be a matter of great difficulty for some of them to continue much longer unless the Government is prepared to spend another £100,000 or so to assist them. It is a very melancholy fact that, after all the tall talk about keeping out the German metal and finding a market for the Australian concentrates, the output of spelter in the United Kingdom last year was less than it was in 1913, and that at the present time the industry has come nearly to a standstill.

"The world's total spelter production to-day is probably at the rate of 600,000 tons per annum. If this country worked at its fullest capacity it could turn out 80,000 to 90,000 tons at the least, yet it is only producing at the rate of 15,000 tons a year."

TRADE EXTENION MOVEMENT IN CANADA

Continued from page 12

Up to the Plumber Himself

At the subsequent convention of the Canadian Society of Domestic Sanitary and Heating Engineers, the sub-committee explained the plan in detail to a much more representative gathering of manufacturers, supply house representatives, and plumbers. The result was to give the plan even greater support, and as soon as definite plans have been formulated for securing the direct co-operation of all branches of the trade, the organization of a Canadian trade extension bureau will be proceeded with.

"It is now up to the plumbers themselves to make the movement a success and to get the most good out of it," said Mr. Armstrong.

Still Trucking Raw Materials Into Canada

Would Have Been Greatest Season for Tools in Canada if Railroad Service Had Been Efficient—Canadian Firms Still "Digging" for Materials and Using Motor Trucks to Transport It.

TORONTO.—"We have no complaint about the business we are getting. Of course at this season of the year we expect there will be a little dropping off, especially if the call for the equipment is not pressing. But we are looking for better business, and it is going to get better just as quickly as the railroad situation gets to the point where it can take care of it. It is our firm belief—and there are others who hold the same view—that had there been good railroad service the Canadian trade would never have seen a greater season for the selling of machine tools than right now. A great deal of this business is still good. One of the things that will help in bringing it into the market is a more reasonable and stable level in the figures for building. From what we can judge, conditions in Canada are fundamentally sound, and early fall will bring all the trade we can possibly get the material to accommodate."

The Scrap for Material

Canadian firms are getting to the point where they know what it means to get out and dig for their material. It used to amount to getting out to dig for the orders, but it is not yet a case of that so much as chasing material. For instance, one well-known Canadian firm has a number of men at one of the Pittsburg mills while another group works around Youngstown, in the steel district. They have a number of heavy trucks, and as soon as they locate any material belonging to their mill they grab it, and run it away to a line that is operating fairly well, fill and seal the cars and see that they get headed out pointing to the Canadian border. This performance is costing them quite a penny, but it means that they are able to get production instead of being at the point of closing down.

One Toronto dealer stated that he had instructions from several firms in this district to get material, no matter how it was sent. They are all willing to stand the added expense of having stakes put in as supports around the sides of flat cars, an unusual way of shipping many lines of steel. The mines are getting the preference on anything that looks like coal-carrying cars now. One Toronto dealer was in Chicago a few days ago at one of the mills there. This mill had a shipment of light rails for one of the mines that was shipping coal to them. They could not hold the cars long enough to get this shipment on board and send it on the return trip to the mines. The claim is made that were an exception made in this case it would create a precedent, and in the end defeat the drastic order that has been put into force to deal with the coal situation.

Little Arriving Here

The warehouses here are getting little assistance from any quarters this week. Shipments are dwindling away from the rather small figures of a few days ago. Reports of cars coming in after having been on the road six weeks and two months are quite common, but it is a healthy sign that practically all this business remains good, and cancellations on account of slow delivery are not often met with.

One view was expressed in the steel market this morning, viz., that many of the cancellations in other lines were not due to the fact that people did not want the goods, but rather that they were using the cancellation option as a club to batter down prices from their present high levels, and that once this were accomplished the orders would come in again. The fact that there is a demand for all sorts of material is one of the best indications of the fundamental strength of the market.

Hardly any class of material owns up to getting good treatment now. One can go over the list of material coming in, or rather not coming in, and be assured that sheets, bars, tubes, plate, etc. are all very slow in arriving, although the trade is getting a little more assistance now in the line of bars from the Canadian mills.

There is a scarcity of labor in some of the local steel warehouses. The work is fairly heavy, and apparently the available men can find easier jobs elsewhere.

No Recovery in Scrap

The scrap market is quiet. Some of the larger dealers had to come into the market a few days ago and take on quite a tonnage in order to cover themselves on promised shipments, and this they were able to do at half a cent under the market. Although it is possible to take on material at fractions off the recognized price, the yards show no tendency to buy as they do not want to take on any more stock. In most cases they are advising their customers to hold their material. There are very few buyers in the market now, and the demand is weak.

TOWN ENGINEER WORDEN OF OSHAWA RESIGNS

Town Engineer W. G. Worden has resigned, and his resignation has been accepted by the Board of Works.

Although Mr. Worden has resigned as Town Engineer he will not be leaving the town, as he has been engaged by the Board of Water Commissioners to act as superintendent of Waterworks. In the past he has divided his time between the general work of the town and the waterworks, and the arrangement has not proved entirely satisfactory.

The salary of the waterworks engineer has been fixed at $3,300 a year, an increase of $600 over the town engineer's present salary. This year alone the town is spending $250,000 in improving the local water systems. While no new appointments have been recommended by the Board of Works it is altogether likely that either Norman Goebel or S. Shupe, assistants in the engineer's office, will be promoted.

JAPAN WANTS CANADIAN GOODS

Montreal.—"Canadian manufacturers have given no heed to the needs of Japan, which has now a billion dollars' favorable trade balance, and is fifth in the main powers of importance."

This statement of A. E. Bryan, Canadian Trade Commissioner at Yokohama, who is at present in Montreal, indicates that Japan is an excellent market for Canadian goods if properly exploited.

Mr. Bryan stated that the Japanese were very anxious to trade with Canada, but it was rather difficult to do so, particularly during the period of the war. Then in Japan there are no Canadian branch export houses and no salesmen from the Dominion visit that country.

While Japan imports a great variety of products, nickel, asbestos, lead, zinc, steel, and various iron manufactured goods are wanted and are imported in extensive quantities. Trade in all these lines, according to Mr. Bryan, may be expanded materially if proper attention is given on the part of manufacturers. There is a good market there, he states, for all kinds of machinery. Just at the present time business conditions are reported to be somewhat slack in that country, although this will be but a temporary condition, and this fall will see very heavy ordering again, he intimates.

CUBA WOULD BUY CANADA'S GOODS

Montreal.—According to Dr. Caballero, who represents the Sun Life Assurance Company of Canada at Havana, Cuba, Cuba is anxious to have direct trade dealings with Canada. He stated recently in Montreal that Canadian goods are much appreciated by Cubans and that if more Canadian salesmen were sent into that field they would be able to secure good orders. Among lines wanted are asbestos, cement, building plaster, wire nails, paper of all kinds, and various lines of manufactured hardware. Great prosperity exists there owing to the greatly inflated price that is being paid farmers for sugar cane, and farmers have grown very wealthy in the past few years.

Increased Building in Past Month

Permits to the Value of $13,278,300 Issued During June—Total for Half Year More than Double Returns for Corresponding Period a Year Ago.

The pronounced improvement in building figures for the Dominion for the early months of the year has been well maintained for the month of June, the building totals for the forty-three cities for the past month standing at $13,278,300, as against $7,138,468 for the corresponding month a year ago. Building totals for the half year period are double the returns for the corresponding period last year, and total $59,691,699, while the returns for the first half of 1919, were $28,252,203, the returns this year being therefore in excess by $31,439,496. This increase is due in small measure to the higher prices prevailing for practically every form of building material this year, but the returns are a guide to the development in building in this country.

Permits issued for the 28 eastern cities reached a total value of $10,011,277, as against $5,798,763 for June, 1919. There has been an extensive revival in the west also, as indicated by the total of $3,267,123 for the 15 cities as compared with $1,339,705 last year. Toronto and Montreal are both well in the lead, Toronto's returns totalling $2,656,193, and Montreal's, $2,440,933. Winnipeg also has made a rapid advance, permits reaching a total value of $1,236,450, as against $22,900 last year. Halifax leads in the Maritime provinces with a total of $489,435, as against $213,300 for St. John, and $163,210 for Moncton. The city of Sherbrooke also has entered upon a period of activity, totals standing at $639,703, as compared with $39,000 last year. Other centres in the east which are carrying out extensive building programs, are Quebec city, $332,990; Hamilton, $452,775; and Windsor, $342,290. Ottawa, with a total of $224,600, is considerably behind last year's figures of $856,205. Vancouver has made progress last month, however, with a total of $236,630 as against $62,921 last year. York township continues its steady development with permits totalling $500,000, an increase from the return of $417,800 a year ago. The smallest return is reported by the city of North Battleford, permits issued last month being valued at $625, and for the corresponding period a year ago, $490.

Te following are among some of the more important construction undertaken in the different cities: Moncton, warehouse, $15,000; foundry, $35,000; three dwellings, $22,000; Montreal, school, $326,800; theatre, $300,000; factory, $270,000; orphanage, $160,000; Toronto Type Foundry, building, $130,000; Sherbrooke, Housing Commission, residences, $573,503; store and tenement, $10,000; Brantford, factory, $35,000; Industrial Realty Co., factory, $35,000; Galt, six houses, $14,700; garage, $6,000; Hamilton, theatre, $250,000; factory addition, $25,000; Kingston, stadium, $50,000; alterations to bank building, $28,000; Kitchener, theatre, $150,000; London, addition to store, $10,000, church, $22,000; Peterborough, alterations to factory, $12,000; Welland, printing house, $17,000; York Township, school, $45,000; nurses' home, $36,000; St. Boniface, oil refinery, $85,000; Winnipeg, nurses' home, $389,000; four schools, $326,000; Calgary, theatre, $300,000; Edmonton, $200,000; factory, $190,000; Weyburn, creamery, $51,458; Vancouver, warehouse, $25,000; Victoria, factory, $40,000.

BUILDING PERMITS ISSUED IN JUNE

Eastern Cities.

Maritimes—	June, 1920	June, 1919	Change	6 mos. 1920	6 mos. 1919	Change
Halifax	$ 489,435	$ 224,290	+ $ 265,145	$ 1,964,320	$ 1,635,536	+ $ 328,784
Moncton	163,210	189,770	— 26,560	533,930	1,119,936	— 586,006
St. John	213,300	9,000	+ 204,300	523,950	90,000	+ 433,950
Sydney	120,900	94,990	+ 25,910	306,807	349,514	— 42,707
Quebec—						
Montreal	$ 2,440,935	$ 731,417	+ $1,709,518	$ 8,554,244	$ 2,887,424	+ $ 5,666,820
Quebec	332,990	177,993	+ 154,997	1,585,454	800,773	+ 784,681
Sherbrooke	639,703	39,000	+ 600,703	2,105,108	418,950	+ 1,686,158
Westmount	119,475	111,440	+ 8,035	505,890	244,619	+ 261,271
Ontario—						
Brantford	$ 97,873	$ 34,630	+ $ 63,243	$ 530,563	$ 433,500	+ $ 97,063
Chatham	24,025	10,575	+ 13,450	244,454	49,405	+ 195,049
Fort William	244,480	275,200	— 30,720	409,260	475,875	— 66,615
Galt	22,750	32,975	— 10,225	160,980	133,220	+ 27,760
Guelph	46,035	103,744	— 57,709	171,055	342,864	— 171,809
Hamilton	452,775	266,780	+ 185,995	2,419,075	1,661,660	+ 757,415
Kingston	139,770	72,770	+ 67,000	414,735	339,859	+ 74,876
Kitchener	254,620	145,950	+ 108,670	814,625	394,320	+ 420,305
London	174,340	163,615	+ 10,725	825,105	548,035	+ 277,070
Ottawa	224,600	856,205	— 631,605	1,347,675	1,657,442	— 309,767
Peterborough	31,660	6,760	+ 24,900	184,975	58,410	+ 126,565
Port Arthur	7,044	5,398	+ 1,646	51,075	82,396	— 31,321
St. Catharines	127,224	57,915	+ 69,309	383,446	282,619	+ 100,827
St. Thomas	38,810	13,670	+ 25,140	102,905	122,575	— 19,670
Stratford	52,782	28,714	+ 24,068	253,623	101,852	+ 151,771
Toronto	2,656,193	1,379,087	+ 1,277,106	12,922,551	6,363,037	+ 6,559,514
Welland	30,775	58,950	— 28,175	198,565	195,070	+ 3,495
Windsor	342,290	279,175	+ 63,115	3,030,965	764,230	+ 2,266,735
Woodstock	23,283	10,950	+ 12,233	161,674	52,578	+ 109,096
York Township	500,000	417,800	+ 82,200	2,351,000	1,627,525	+ 723,475
Total 28 E. cities	$10,011,277	$5,798,763	+ $4,212,514	$43,058,009	$23,233,224	+ $19,824,785

Western Cities.

Manitoba—						
Brandon	$ 26,075	$ 5,190	+ $ 20,885	$ 55,478	$ 35,737	+ $ 19,741
St. Boniface	130,320	11,920	+ 118,400	249,345	48,240	+ 201,105
Winnipeg	1,236,450	22,900	+ 1,213,550	5,435,450	498,650	+ 4,936,800
Alberta—						
Calgary	$ 494,900	$ 381,000	+ $ 113,900	$ 1,740,400	$ 1,457,900	+ $ 282,500
Edmonton	544,075	306,285	+ 237,790	1,940,850	435,060	+ 1,505,790
Saskatchewan—						
Moose Jaw	$ 98,035	$ 37,625	+ 60,410	$ 516,020	$ 238,535	+ $ 277,485
Regina	158,900	192,700	— 33,800	1,432,550	646,450	+ 786,100
Saskatoon	65,890	132,225	— 66,335	271,090	399,100	— 128,010
Weyburn	97,458	600	+ 96,858	2,354,766	3,670	+ 2,351,096
Yorkton	49,795	137,595	— 87,800	114,995	146,670	— 31,675
N. Battleford	625	490	+ 135	5,150	21,190	— 16,040
Prince Albert	40,920	14,700	+ 26,220	337,655	78,905	+ 258,750
British Columbia—						
New Westminster	$ 33,400	$ 8,575	+ 24,825	$ 217,765	66,225	+ 151,540
Vancouver	236,630	62,921	+ 173,709	1,625,275	785,471	+ 889,804
Victoria	53,550	24,979	+ 28,571	336,901	207,176	+ 129,725
Total 15 W. cities	$ 3,267,023	$1,339,705	+ $1,927,318	$16,633,690	$ 5,018,979	+ $11,614,711
Grand total 43 cities	$13,278,300	$7,138,468	+ $6,139,832	$59,691,699	$28,252,203	+ $31,439,496

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

IMPORTANT changes have been made on the prices of some basic lines and the tendency is for still higher quotations. Prices on wrought iron and steel pipe have been revised upwards. Pipe fittings, including nipples, couplings, Dart unions, etc., have also been advanced. Higher quotations have been made on hot water boilers, while radiators for steam and hot water will cost dealers considerably more.

A good demand is being made for English closet bowls and combinations, sink and tray combinations, and other lines of enamelled ware, including basins. Compression work is also in good demand. Range boilers are scarce, also corrugated elbows and eavestrough.

Business is fair and many are of the belief that some improvement could be made providing the goods were more plentiful and easier to procure. The present outlook for deliveries on many lines is not bright and many are concerned for future deliveries. This may be due to the setback the majority of industries have experienced owing to fuel and raw material shortage mainly caused by the tie-up of freight.

Collections are coming forward satisfactorily.

MONTREAL MARKETS

MONTREAL, July 13.—Prices on most lines hold decidedly firm. The movement of a number of staple lines has lessened and trade could be better, some state. At the same time there is quite a steady output of staple materials, and the output would be greater were there not so many shortages of lines that are needed to finish a job once it is started.

Solders have been reduced in price recently and this is due to the lower prices obtaining on tin in the English market. Aside from this reduction there is practically no decline on any other line.

The most important event of the week from a price standpoint is that of an advance in the price of wrought iron pipe. This has been induced by a scarcity of skelp. The difficulties have increased owing to a scarcity of coal, and some plants are fearing they may have have to close down temporarily. All this, added to the continued high labor costs, are holding the finished product high, and this will likely mean that few, if any, material declines can be anticipated for many weeks. sheets are scarce and still high in price. Enamelled ware holds firm and unchanged. Dart unions are higher through a change of discount. Cotton waste is firm and may advance more. Old scrap may possibly decline in price, as manufacturers are not in the market for large quantities of old material.

As far as the trade is concerned, there is some quietness in the matter of job work. Those who would build are not anxious to face the uncertainties of completing, once they begin building operations. The new factor in the situation—that of fuel scarcity, is no small one, and some are worrying regarding this new feature. Altogether, however, the outlook is still encouraging in many ways.

Bound to be Firm Are Steel and Iron

Montreal.

IRON AND STEEL.—A considerable movement of iron and steel bars prevails at the present time, the only difficulty being that of having good delivery. The tendency is firm and there is no probability of prices declining on either iron or steel bars.

IRON AND STEEL

Iron finish machinery steel	$5 05
Norway iron	13 50 15 00
Single reeled machinery steel	6 50
Spring steel	5 50
Sleigh shoe steel	5 50
Tire steel	5 20
Toe calk steel, per 100 lbs.	5 90
Band steel	5 00
Harrow tooth steel	5 15
Mining tool steel, per lb.	0 24½
Black diamond tool steel, per lb.	0 24½
Black diamond cast steel, per lb.	0 24½
Common bar iron, per 100 lbs.	4 65
Refined iron, per 100 lbs.	5 65
Mild steel	5 00

3-16 and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

One Line Unions Higher in Price

Montreal.

FITTINGS.—Pipe fittings are selling actively at the present time, and discounts are unchanged. There is some difficulty in getting sufficient quantities of raw material, and altogether the outlook is a firm one. Dart unions have advanced somewhat in price. The present discount on ¼ to 2 inch is 8 per cent. Malleable fittings are unchanged in price.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	Plus 50%
Do., 2½-in. and larger	8%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Fittings and Soil Pipe Unaltered

Montreal.

SOIL PIPE AND FITTINGS.—The demand for soil pipe is quite active and the market condition is fairly strong although prices are unchanged. Fittings are selling at prices quoted in last issue with discounts unaltered.

SOIL PIPE (Medium and extra heavy)—Net.
2-3-5 and 6-inch, add 10% to list.
FITTINGS—
4-inch, net list.
2 to 6 inch, fittings, 20% discount.
8 inch pipe and fittings, add 20% to the list.

Some Time Before Easy Prices on Steel Sheets

Montreal.

SHEETS AND PLATES.—Continued scarcity of both black and galvanized sheets is apparent on every side. It is impossible at this time to say just how much improvement may be looked for in the near future, and it is doubtful if steel sheets will be available this fall in anything like desired quantities. As a result of prevailing conditions the undertone is naturally very firm.

BLACK SHEETS—		
10 gauge	....	9 00
12 gauge	....	9 05
14 gauge	....	9 10
16 gauge	....	9 35
18-20 gauge	....	9 40
22-24 gauge	....	9 45
26 gauge	....	9 50
28 gauge	....	9 50
GALVANIZED SHEETS—		
U.S. Standard—		
10¾ gauge	....	12 50
28 gauge	....	12 10
26 gauge	....	10 75
22 and 24 gauge	....	11 55
20 gauge	....	11 55
18 gauge	....	11 55
16 gauge	....	10 25
English Standard—		
28 gauge	....	12 50
26 gauge	....	12 25
24 gauge	....	11 65
22 gauge	....	11 30
18 and 20 gauge	....	10 85

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Cotton Waste Firm; Likely to Stay So

Montreal.

COTTON WASTE.—Prices are holding firm on cotton waste of the various grades. Importers state that there is likely to be little, if any reduction in prices. The tendencies are rather firm than easy, and the outlook is such as to suggest high prices on waste for some time to come.

WASTE		
Cream, Polishing	....	0 28
WHITE		
XXX	....	0 24
XX	....	0 22½
X	....	0 20
XC	....	0 18½
Japanese	....	0 17
XXX	....	0 24
XX, grad.	....	0 22½
XLCR	....	0 21
X Empire	....	0 19½
X Press	....	0 17½
X Special	....	0 15½
COLORED		
No. 1	....	0 18
No. 7	....	0 16
No. 1A	....	0 14½
No. 1B	....	0 12½
Fancy	....	0 19
Lion	....	0 17
Standard	....	0 15
Popular	....	0 13
Keen	....	0 11

Above lines subject to trade discount for quantity.

Wrought Pipe Has Been Advanced

Montreal.

WROUGHT PIPE.—An advance has been registered in the price of standard wrought iron pipe, and this totals about $4 per ton. The scarcity of skelp is given as the reason for this advance, coupled with adverse transportation conditions which naturally serve to increase the cost of production. New price lists have been published as from July 7, and the following list, No. 45, is in effect from that date:

PIPE—WROUGHT

Price List, No. 45—July, 1920

STANDARD BUTTWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
⅛ in.	$6 50	$ 8 50	$	$ ....
¼ in.	5 31	7 41	5 61	7 71
⅜ in.	5 31	7 41	5 61	7 71
½ in.	7 10	8 63	7 52	9 05
¾ in.	8 80	10 87	9 37	11 44
1 in.	13 01	16 07	13 86	16 92
1¼ in.	17 60	21 74	18 75	22 89
1½ in.	21 04	25 99	22 41	27 36
2 in.	28 31	34 97	30 16	36 82
2½ in.	44 75	55 28	....	....
3 in.	58 52	72 29	....	....
3½ in.	74 06	90 62	....	....
4 in.	87 75	107 37	....	....

STANDARD LAPWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
2 in.	$32 01	$38 67	$35 71	$42 37
2½ in.	47 09	57 62	52 94	63 47
3 in.	61 58	75 35	69 23	83 00
3½ in.	75 90	92 46	85 10	101 66
4 in.	89 93	109 55	100 83	120 45
4½ in.	1 02	1 26	1 28	1 52
5 in.	1 19	1 47	1 49	1 77
6 in.	1 55	1 91	1 93	2 29
7 in.	2 01	2 49	2 49	2 96
8-L in.	2 11	2 61	2 61	3 11
8 in.	2 43	3 01	3 01	3 59
9 in.	2 92	3 61	3 61	4 30
10-L in.	2 70	3 34	3 34	3 98
10 in.	3 48	4 31	4 31	5 13

Terms—2% cash discount if paid within 30 days. Approved credit.

Scarcity Boiler Tubes Reported Quite Acute

Montreal.

BOILER TUBES.—Seamless boiler tubes are very scarce at the present time. Delivery is poor and this is due to continued difficulty with transportation from the United States. It is not at all improbable that prices, while unchanged this week, may advance in the near future. There is a considerable demand for the product.

Old Scrap Softer; May Be Declines

Montreal.

OLD MATERIALS.—As stated in last report, the market conditions for old materials are not very satisfactory. That is to say conditions are quiet and manufacturers are not in the market for large quantities of old scrap. This has the effect of softening the market, and while prices are holding without much definite change, the undertone is easier and declines may be looked for unless the buying on the part of the manufacturers improves.

DEALERS' BUYING PRICES		
Pipe scrap	....	16 00
No. 2 busheling	12 50	13 50
Stove plate, per ton	....	27 00
Yellow brass	0 10	0 11
Red brass	0 17	0 18
Light brass	0 08	0 09
Scrap zinc	0 07	0 08
Heavy copper	....	0 18
Wrought iron, No. 1, per gr. ton	....	22 00
Heavy melting steel	....	22 00
Heavy lead	0 06	0 07
Tea lead	....	0 03½

Radiators Will Be Readily Picked Up

Montreal.

RADIATORS.—Doubtless there will be demand for many full stocks of radiators this fall in view of the restricted production. As has been stated already, the manufacturers have had difficulties with which to contend, and this means that the production has suffered. Prices are holding firm, and it will be those who place orders early who will save themselves disappointment in delivery later.

Compression Work Goods Firmly Held

Montreal.

COMPRESSION WORK.—While the market conditions have grown quieter, the undertone on these goods is naturally strong. Cost of production has held prices firm, and there is little probability of lower quotations becoming effective within near distance. Discounts on standard goods remain as follows:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Range Boiler Prices Strong; Fair Stocks

Montreal.

RANGE BOILERS.—Despite the difficulties of obtaining plates, there has been fair delivery of range boilers, and jobbers state that they are fairly well supplied to take care of orders. The tendencies are firm, of course, but standard sizes are quoted without change, the 30-gallon standard selling at $15, and the extra heavy at $18 each.

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Standard Enameled Ware Held Unchanged

Montreal.

ENAMELED WARE.—Tubs and lavatories, closets and pedestals are holding firm. These are in somewhat lessened demand at the present time. Due to the limitations of building operations in some respects and owing to the difficulty of getting other materials, plumbers have not been able to carry on operations uninterruptedly, and this has affected the outgo of this material. There is a fair demand, however, seasonably speaking.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4045			11 05
18x24" Apron F154 or P3845 or P3847			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9 05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Solders Are Lower Due to Tin Reduction

Montreal.

LEAD PRODUCTS.—Prices are somewhat easier on solder. This has been induced by the better prices ruling for tin, which has had a spectacular career in London. Local prices on strictly commercial and wiping solders have been shaded considerably, and corrected quotations are given below. The market generally, on the other lead products such as pipe, sheet lead, etc., is without change. Any slight favoring of price from the basic lead quotations are offset by the higher cost of fuel, labor costs, etc.

Lead pipe, per 100 lbs.	....	17 00
Lead waste, per 100 lbs.	....	18 00
Note—Lead pipe is subject to a discount of 10%.		
Lead traps and bends	List plus	30%
Lead wool, lb.	....	0 16
Lead sheets, 2½ lbs.	....	0 14
Lead sheets, 3 to 3½ lbs. sq. ft., lb	....	0 13¼
Do., 4 to 8 lbs., sq. ft.	....	0 13
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.		
Solder, guaranteed, lb.	....	0 37½
Solder, strictly, lb.	....	0 35½
Solder, commercial, lb.	....	0 33
Solder, wiping, lb.	....	0 32¾
Wire solder—		
40-60	....	0 37½
45-55	....	0 39¾
50-50	....	0 42¼
Zinc sheets, casks	....	0 16½
Do., broken lots	....	0 17

Ingot Market Tone Somewhat Improved

Montreal.

INGOT METALS.—Some local improvement is noticeable this week in ingots. That is to say the movement is somewhat better and the price basis more steadied. While a quiet time of the year has arrived, some are looking for reasonably good business.

TIN.—London markets have settled down to a better basis and prices hold here at around 58 to 60 cents per pound, with some trading reported.

COPPER.—Prices are 23½ cents for casting grade and 24 cents for electrolytic. The undertone is more settled than it has been

LEAD.—This is a bit firmer in tone, 10 to 10½ cents being quoted. Trading is only fair in this market.

SPELTER.—Some are quoting higher on this at 12½ cents, although others are offering at 10¾ cents per pound.

ANTIMONY.—At 11 to 13 cents per pound there is some business, although the liquidation is not so heavy as it was a few weeks ago.

ALUMINUM.—A price of 37 to 38 cents per pound is being quoted on this.

TORONTO MARKETS

TORONTO, July 15.—Higher prices have again been made on many important lines and present indications point to still higher quotations. Wrought iron and steel pipe have come up for higher price revisions. And pipe fittings, including nipples, couplings, Dart unions, etc., have also been advanced. Hot water boilers also have new higher quotations, having been marked up about 5 per cent. Wall and floor radiators for steam and hot water have also been advanced in price.

Considerable shortage is noted on many lines and range boilers and corrugated conductor elbows are hard to procure. Business has fallen off to some extent. This, however, is believed to be on account of the shortage of so many lines, which has materially hindered work and has been the means of holding up many jobs.

Collections are still coming freely.

Hot Water Boilers Have New Higher Quotations

Toronto.

HOT WATER BOILERS. — An advance of approximately 5 per cent. has been made on hot water boilers, the new discount being quoted at 45 per cent. in place of the former 50 per cent. discount from the list. The higher cost of raw material and the great difficulty experienced in securing supplies as well as the coal shortage all have a tendency to boost the price of the finished product.

Revised Discount and List on Radiators

Toronto.

RADIATORS. — Many commodities manufactured from iron or steel are daily coming up for higher revision, and radiators are no exception to this rule, and a stiff advance has been made on the price of nearly all makes. Manufacturers state they are faced with the difficulty of securing supplies of raw material and also have trouble in securing sufficient coal. The freight transporation problems have also been a factor for a great inconvenience and higher cost of handling materials. The discount on the hot water radiators is 40 per cent. off the list, while 41 per cent. discount is given off the list of the steam radiators. Wall radiators have also been advanced and are subject to a discount of 40 per cent. The following are the new revised lists and discounts:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 40% for hot water and 41% for steam.

Wall Radiators.—5 in., $1.15; 6 in., $1.10; 7 in., $1.05; 9 in., $1.05; 12 in., $1.05. Discount 40%.

Higher Quotations Again Made on Wrought Pipe

Toronto.

WROUGHT PIPE. — An important higher revision has been made on the price of pipe and wrought iron and steel pipe will now cost the dealer more. Stocks generally are said to be very light and especially is this true of some sizes which jobbers state they have been sold out of for sometime back. The transportation difficulties are causing manufacturers of pipes great inconvenience, and one manufacturer stated that he had three weeks' supply of coal on the road which has been coming for some time and up to the present he has no idea when it will arrive. He also stated that if the situation did not show signs of improvement that they may be forced to close down for lack of fuel or raw material as the case may be.

In some localities it is stated that pipe is so scarce that many jobs are being held up for want of supplies. The skelp mills are also said to be booked to capacity and some have been handling considerable premium business. The condition it is believed, was brought about by the vast increase in the amount of gasoline and other oils; research work and drilling operations requiring many miles of pipe of various kinds as a result.

The following are the present quotations:

PIPE—WROUGHT

Price List, No. 45—July, 1920

STANDARD BUTTWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
⅛ in.	$6 50	$ 8 50	$	$ ....
¼ in.	5 31	7 41	5 61	7 71
⅜ in.	5 31	7 41	5 61	7 71
½ in.	7 10	8 63	7 52	9 05
¾ in.	8 80	10 87	9 37	11 44
1 in.	13 01	16 07	13 86	16 92
1¼ in.	17 60	21 74	18 75	22 89
1½ in.	21 04	25 99	22 41	27 36
2 in.	28 31	34 97	30 16	36 82
2½ in.	44 75	55 28	....	....
3 in.	58 52	72 29	....	....
3½ in.	74 06	90 62	....	....
4 in.	87 75	107 37	....	....

STANDARD LAPWELD S/C

	Steel		Gen. Wrot. Iron	
	Black	Galv.	Black	Galv.
2 in.	$32 01	$38 67	$35 71	$42 37
2½ in.	47 09	57 62	52 94	63 47
3 in.	61 58	75 35	69 23	83 00
3½ in.	75 90	92 46	85 10	101 66
4 in.	89 93	109 55	100 83	120 45
4½ in.	1 02	1 26	1 28	1 52
5 in.	1 19	1 47	1 49	1 77
6 in.	1 55	1 91	1 93	2 29
7 in.	2 01	2 49	2 49	2 96
8-L in.	2 11	2 61	2 61	3 11
8 in.	2 43	3 01	3 01	3 59
9 in.	2 92	3 61	3 61	4 30
10-L in.	2 70	3 34	3 34	3 98
10 in.	3 48	4 31	4 31	5 13

Terms—2% cash discount if paid within 30 days. Approved credit.

Pipe Fittings Also Join March Upwards

Toronto.

PIPE FITTINGS. — New and higher prices have again been made on pipe fittings, the advance being a fairly sharp one. Jobbers state they have had considerable difficulty in securing sufficient

supplies of fittings, and in some cases they state that jobs are being held up for lack of certain kinds or sizes.

The new quotations are very firm and are as follows:

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart union, ¼-in. to 2-in.	8%
Do., 2½-in. and larger	Plus 5%
Nipples, up to 4-in.	50%
Do., 4½-in. and larger	40%
Do., running thread, 4-in. and under	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Some Shipments of English Closet Bowls Coming

Toronto.

CLOSET BOWLS. — Jobbers state they are having much more satisfactory deliveries of closet bowls, and English manufacturers seem to be gradually getting into better position to supply the demands made on them. The tendency is still for higher prices in this commodity, although the present quotation is unchanged and very firm.

Closet Combinations Firm; Price Steady

Toronto.

CLOSET COMBINATIONS. — Little change has been made in the situation regarding closet combinations, either in the high-up tank or the low-down tank. A fairly heavy demand is current for nearly all makes and styles and with the better shipment of closet bowls supplies seem adequate to supply the demand.

Heavy Movement of Sink and Tray Combinations

Toronto.

SINK AND TRAY COMBINATIONS, at present, are enjoying a very heavy demand and jobbers state they are very well satisfied with the amount of business being handled on this line. The price remains very firm, no change having been made recently; the tendency is still for higher prices.

Gas Water Heater Demand Greater Than Supply

Toronto.

GAS WATER HEATERS. — Jobbers state that at present they are having considerable difficulty in supplying the heavy demand for nearly all kinds of gas water heaters and some makes are very scarce. This is said to be due to the difficulty of securing iron castings by manufacturers while some are held up for coils and fittings. Notwithstanding the fact that at this season of the year the demand usually slackens up considerably, jobbers state that this season shows an entire reversal and the demand is still very persistent. The present prices remain unchanged, although the quotations are very firm.

Corrugated Elbows Are Hard to Procure

Toronto.

ELBOWS. — Galvanized elbows of nearly all kinds are becoming very scarce, and jobbers state they have great difficulty in securing sufficient to cover the present demand. Especially is this true of corrugated and with the supply of raw material showing no improvement in deliveries, very little hope is being held out for an early improvement over this condition. The present prices are very firm, although no recent change in price has been made.

Some Basins Having Heavy Buying Movement

Toronto

ENAMELLED WARE. — Transportation difficulties seem to be causing the manufacturers much loss of time, material and waste labor, and while manufacturers state they are having fairly satisfactory production under existing circumstances, that they would be at a much better advantage were the shortage of cars and the tie-up on the railroads to improve to such an extent that the freight movements would again become free. The present quotation or nearly all lines of enamelled ware is still very firm, and some are wondering whether higher prices will again be made, although it seems that this is a condition that time alone will solve. The present quotations seem to be very steady and many are hoping for at least a continuation of the present quotations in preference to higher prices being made. The following prices are current on some of the better known sizes and styles:

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	$37 05
Bath tubs, 5½ ft.	41 20
Lavatories—	
17x10" Apron F139 or P4045	11 05
18x24" Apron F154 or P3845 or P3847	17 00
18x21" Apron F169 or P4205	12 70
18x21" Roll rim F197, F199 or P4655-6	11 10
17x19" Roll rim F241 or P4345	9 05
Sinks, roll rim, 18 x 30 in.	16 60

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Active Demand Made For Compression Work

Toronto.

COMPRESSION WORK.—Valves and compression work of nearly all kinds continue to hold at very firm prices, and although no recent higher quotations have been made, many are wondering if this will not be the case in the near future. The price of labor has shown no decrease and raw materials continue to advance. However, the heavy demand which is current for nearly all commodities on this list has a tendency to keep the price down in view of the heavy turnover. Some of the better known lines are quoted as follows:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

May be a Shortage on Eavestroughing Stocks

Toronto

CONDUCTOR PIPE. — Supplies of nearly all kinds of galvanized pipes are becoming limited. This is a situation attributed to the great scarcity of flat sheets; manufacturers are in a quandary as to how they are going to be able to supply the persistent demand. They state that stocks are becoming very low of the manufactured products and that the shipments of flat sheets are very tardy.

The present quotations are very firm, although no change has recently been made, and are as follows:

PIPE (Conductor)

Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in.	$6 90	15-in.	$12 50
10-in.	7 70	18-in.	16 00
12-in.	9 10		

Add 15% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Cotton Waste Prices Firm; Unchanged

Toronto.

COTTON WASTE.—Many are anxiously watching the new crop of cotton and the present outlook for a good harvest is at present very bright. The present quotations on cotton waste are very steady and the situation is rather firm. Transportation difficulties are at present causing some inconvenience to importers and shipments have been considerably delayed. The following are the present quotations:

WASTE

Cream, Polishing	0 28

WHITE

XXX	0 23
XX	0 21½
X	0 20
XC	0 18½
Japanese	0 17
XXX	0 24
XX, grad.	0 22½
XLCR	0 21
X Empire	0 19½
X Press	0 17½
X Special	0 15½

COLORED

No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 19
Lion	0 17
Standard	0 15
Popular	0 13
Keen	0 11

Above lines subject to trade discount for quantity.

MADE IN CANADA

MUELLER

Nickel Plated

Adjustable Basin Traps

With Cast Parts

We offer N.P. Adjustable Basin Traps, S. and P., Plain and Vented, in 1¼" size, for prompt shipment.

Mueller Traps combine:

Beauty of Design,
Quality of Material
and Finish.

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

H. Mueller Mfg. Co., Ltd.

SARNIA
CANADA

MANUFACTURERS OF HIGH GRADE MUELLER WATER PLUMBING AND GAS BRASS GOODS

Stocks of Soil Pipe Light; Prices Firm

Toronto.

SOIL PIPE.—Very little change has been made in soil pipe situation, although manufacturers state they are still up against a heavier demand than they can possibly handle, and while some state they have had difficulty in securing coal and fuel as well as raw material they have been able to keep production going.

While it is understood that the Western Provinces have fairly heavy supplies of soil pipes, manufacturers point out that owing to the high freight rate, high cost of transportation, the price would be too stiff, especially for those with contracts. The following are the present quotations on soil pipe and fittings:

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, add 10% to list.

FITTINGS—
4-inch, net list.
2 to 6 inch fittings, 20% discount.
8inch pipe and fittings, add 20% to the list.

Range Boiler Prices Firm; Remain Unchanged

Toronto.

RANGE BOILERS.—A very tight situation still prevails on range boilers and manufacturers state they have great difficulty in making deliveries in sufficient quantities to supply the very heavy demand.

The shortage of raw material seems to be one of the main factors that the manufacturers have to face, although the scarcity of coal and other fuel has also been a drawback. Transportation facilities have also been working against the manufacturers' interests and many shipments of raw material have been tied up in transit as a result. The present quotations on range boilers are very firm, although no change has been made in the price. The following are the prices that are current:

Range Boilers—	Standard	Ex.Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Solder Prices Firm; Lead Pipe in Demand

Toronto.

LEAD AND ZINC PRODUCTS. — A very satisfactory buying movement is being made at present for nearly all kinds of solder and fair volumes are moving out. Lead pipe and lead waste and traps also have a keen demand and many hundred lbs. are daily being used. The situation shows little change over last week and all in the following list have the same quotations as previously, although present prices are rather firm due to the fluctuation of the basic metals. Nearly all products have uncertain quotations and whether any downward change will be made in the future remains to be seen. The following are the present quotations:

Lead pipe, list, per lb.	....	0 17
Lead waste pipe, list, per lb.	....	0 18
Do., over 8 in., list, per lb.	....	0 19
Lead traps and bends	....	add 30%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	....	0 13
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.		
Solder, wire, lb.	....	0 43
Solder, strictly, lb.	....	0 35
Solder, commercial, lb.	....	0 33
Solder, guaranteed, lb.	....	0 39
Solder, wiping, lb.	....	0 33
Zinc sheets, per lb.	....	0 19

Waste Materials Still Have Sagging Tendency

Toronto.

WASTE MATERIALS.—A sagging, downward tendency is still being experienced for waste materials and the present market is very sluggish.

One large dealer stated that the present conditions were such that English materials could be laid down and purchased for practically the same money as is being offered here. It is hard to state just what the future will show for these lines in the way of improvement. Some have hope, however, for a better demand in the near future, and are anxiously watching for the clearing up of the results from the recent freight tie-up. The following are the present quotations:

DEALERS' BUYING PRICES

Pipe scrap	....	11 00
No. 2 busheling	....	13 00
Stove plate, per ton	....	....
Yellow brass	....	0 10
Red brass	....	0 15¾
Light brass	....	0 08
Scrap zinc	....	0 06½
Heavy copper	....	0 17
No. 1 machinery cast	....	....
Wrought iron, No. 1, per gr. ton	....	15 00
Heavy melting steel	....	15 00
Heavy lead pipe	....	0 06
Old rubbers, boots and shoes	....	0 06
Overshoes, lumbermens rubber boots	....	0 04
Bicycle tires	....	0 01½
Automobile tires	....	0 03
Tea lead	....	0 04
Heavy lead pipe	....	0 06

Boiler Tubes Have Much Firmer Tone

Toronto.

BOILER TUBES are still holding at firm prices, although the tendency is for higher quotations. A considerable scarcity is noted for some sizes of boiler tubes, and jobbers state they are getting anything but sufficient supplies from the mills, who in turn state they have found it almost impossible to secure sufficient supplies of skelp. It is believed that great demands have been made on the skelp mills this season owing to the extension and research work being carried out on the oil fields, and some have it that many miles of pipe have been secured for this purpose at premium prices for which mills have had to neglect other orders coming from the regular sources.

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 00	30 00
2 inch	37 00	32 00
2¼ inch	37 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Few Shipments of Sheets or Plates Coming

Toronto.

SHEETS AND PLATES.—The situation regarding sheets is not being readily relieved and few if any are able to accumulate sufficient stock to fill the orders they have booked. Manufacturers are in a quandary as to when they will receive their orders which have been booked for some considerable time, and while it is true that some are receiving small shipments the supplies that are coming through are in no way sufficient to supply the huge demand.

BLACK SHEETS

14 gauge	....	$8 95
16 gauge	....	9 00
18-20 gauge	....	9 45
22-24 gauge	....	9 50
26 gauge	....	9 55
28 gauge	....	9 65
3-16 inch plate	....	9 75
¼-inch boiler plate	....	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$12 00	$12 50	$12 00	$13 25
U.S. 28	11 45	12 70	11 45	12 85
U.S. 26	11 15	12 40	11 15	12 55
22 and 24	11 00	12 25	11 00	12 40
18 and 20	10 70	11 95	10 70	12 10
16	10 70	11 95	10 70	12 10
12 and 14	10 55	11 20	10 55	11 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Lead and Spelter Higher; Tin Also Up 4½c Lb.

Toronto.

INGOT METALS.—The list as shown below for ingot metals is considerably firmer all around. Tin has been marked up 4½ cents per lb., lead is up ¼ cent a lb., spelter has also had a slight advance, and while the price on other metals is unchanged, the situation is very firm.

TIN has shown considerable strength and a substantial advance of about 4½ cents per lb. has been made. This makes the new quotation 63 cents per lb.

LEAD.—Lead has also been revised upwards and a ¼ cent per lb. has been added to previous prices. Stocks continue rather light with a good demand being offered. The new quotation is 10½ cents per lb.

SPELTER.—The quotations on spelter are also firmer and an advance of ¼ cent per lb. has been made, making the new quotation 10¾ cents per lb.

ANTIMONY has showed considerably more strength and the demand is somewhat heavier. The quotation remains unchanged, prices being from 12½ cents to 15½ cents per lb.

COPPER. — Quotations on copper show little change, although the situa- has been shown on aluminum, the price remains at 24 cents per lb.

TRADE MARK J.M.B. REGISTERED A GUARANTEE OF QUALITY

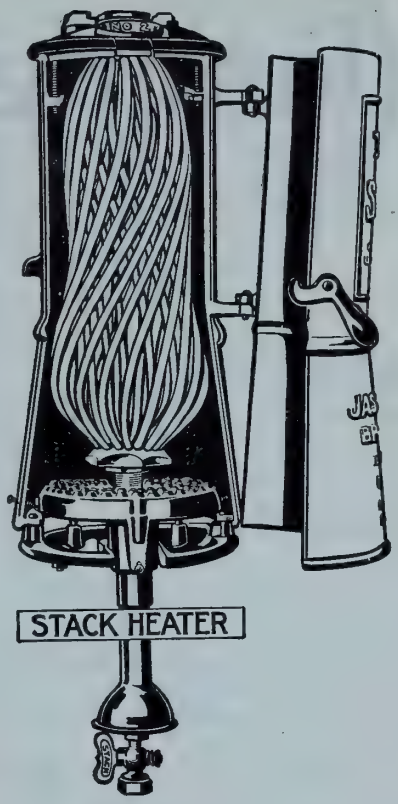
Will Heat Water Faster With Less Gas

STACK HEATER

The Stack Hot Water Heater will heat water in one minute, and with less gas. These are the strong points which make easy selling for the Stack Heater.

When your customers see how the water passes into the numerous small pipes exposed to the hot gas flame, they understand. It requires no technical knowledge to see that the water will heat faster in the numerous small pipes than in one large coil.

Send for Stack Heater Display Card.

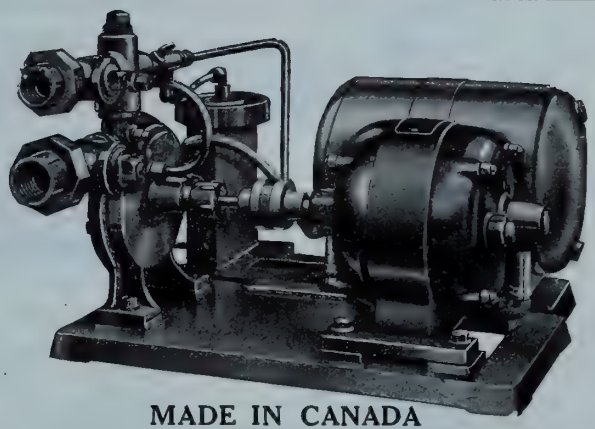


James Morrison Brass Mfg. Co., Limited
93-97 Adelaide Street West - Toronto

A Necessity In Every Rural Home

NOTHING is so badly needed in most rural homes, farms, etc., as running water. The Westco Tankless Water System—which weighs less than a hundred pounds—performs its duty thoroughly wherever installed, and is receiving whole-hearted praise from farmers and rural residents who have installed one.

The agents, salesmen and engineers now recommending — and selling — the Westco System are making good profits, because the high reputation of the system is spreading rapidly. On farms or in rural homes where electricity is available the Westco System is proving itself to be the simplest, most efficient, and most economical system of water supply.



MADE IN CANADA

These are the selling features—the points that will interest the farmer, and the rural and suburban resident:

(a) Requires no pneumatic or attic storage tank.
(b) Simply constructed; no possibility of complications.
(c) Entirely automatic. Open tap, pump immediately starts pumping. Close tap, pump stops.
(d) Pumps 300 to 500 gallons per hour.
(e) Costs less to buy, instal, maintain and operate.
(f) Has no tank, no gears, no valves, no belts, no oil cups, no grease cups, etc.
(g) Is self-lubricating.
(h) Pump has only one moving part—the impeller. Nothing to wear out, except two small bearings, which will last for years.
(i) Size, 16½" long, 14½" wide and 11" high.
(j) Uses less power than an electric iron, while supplying water for four faucets.

Write us for full particulars. There are still a few good territories left open.

Westco Pumps, Limited, 707 Yonge St., Toronto, Ont.

AIR CONDITIONING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR RECEIVERS
Wm. B. Scaife & Sons Co., Oakmont, Pa.

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

AIR PRESSURE TANKS
The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

ASBESTOS GOODS
James Morrison Brass Mfg. Co., Toronto.

BOILERS, STEAM OR HOT WATER
The Canadian John Wood Mfg. Co., Toronto.
Gurney Foundry Co., Limited, Toronto.
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOILER FITTINGS
Fittings Limited, Oshawa.

BOILER STANDS
Fittings Limited, Oshawa.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N.Y.

BRASS GOODS, VALVES, ETC.
Canadian Brass Co., Ltd., Galt, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Wolverine Ltd., Toronto, Ont.

CELLAR DRAINERS
Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CLAMPS "C"
J. H. Williams & Co., Brooklyn, N.Y.

CLOSETS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

COUNTRY RESIDENCE EQUIPMENTS
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DAMPER REGULATORS
C. A. Dunham Co., Ltd., Toronto.

DEHUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

DRAINAGE FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

FITTINGS, CAST IRON, SCREWED, FLANGED, DRAINAGE AND MALLEABLE, SCREWED
Fittings Limited, Oshawa.

FILTERS (WATER)
Wm. B. Scaife & Sons Co., Oakmont, Pa.

FLUSHOMETERS
Beaton & Corbin Mfg. Co., Southington, Conn.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES
Beaton & Cadwell Mfg. Co., New Britain, Conn.

Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

FURNACES
Gurney Foundry Co., Limited, Toronto.
Steel & Radiation, Ltd., Toronto.

GASOLINE ENGINES
Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS
Consumers' Gas Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

GRATES FOR RANGES, FURNACES AND BOILERS
McIntyre & Taylor, Toronto.

GREY IRON CASTINGS
Fittings Limited, Oshawa.

HEAT GENERATORS
Galt Brass Co., Galt, Ont.
James Morrison Brass Mfg. Co., Toronto.

HEATING APPARATUS
C. A. Dunham Co., Ltd., Toronto.

HEATERS
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.

HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
Modern Heating & Eng. Co., Ltd., Montreal.

HUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

HOIST HOOKS
J. H. Williams & Co., Brooklyn, N.Y.

HOT WATER COILS, DOMESTIC
McIntyre & Taylor, Toronto.

HUMIDIFIERS
B. F. Sturtevant & Co., Hyde Park, Mass.

LEAD
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hoyt Metal Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

MACHINISTS' TOOLS
J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS
Gurney Foundry Co., Limited, Toronto.
Fittings Limited, Oshawa.

MIXING VALVES
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

MONKEY WRENCHES
Trimont Mfg. Co., Roxbury, Mass.

PACKING
Empire Mfg. Co., Ltd., London and Toronto
Wolverine Ltd., Toronto, Ont.

PACKLESS RADIATOR VALVES
Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn
Fittings Limited, Oshawa.

PIPE, BLACK AND GALVANIZED
Canadian Tube & Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd. Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.

PIPE CLEANSER
Borden Canadian Co., Ltd., Toronto.
Chamberlain Desolvo Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Trimont Mfg. Co., Roxbury, Mass.
Wolverine Ltd., Toronto, Ont.

PIPE JOINT COMPOUNDS
Canadian Wolverine Co., Ltd., Chatham
James Morrison Brass Mfg. Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.

PIPE, SOIL, AND FITTINGS
Anthes Foundry Co., Toronto and Winnipeg.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Toronto Hardware Mfg. Co., Toronto.
Warden King, Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY
Borden Canadian Co., Toronto.
John Hall & Sons, Ltd., Brantford.
A. B. Jardine & Co., Hespeler.
Wells Bros., of Canada, Galt.

PIPE WRENCHES
Borden Canadian Co., Toronto.
Trimont Mfg. Co., Roxbury, Mass.
J. H. Williams Co., Brooklyn, New York.

PLUMBERS' TOOLS
J. H. Williams & Co., Montreal, Que.

PNEUMATIC WATER SUPPLY TANKS
Empire Mfg. Co., London and Toronto.
Wm. B. Scaife & Sons Co., Oakmont, Pa

PORCELAIN WARE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
R. MacDougall & Co., Ltd., Galt.
Porcelain Products Ltd., Toronto, Ont.

RADIATOR FOOT RESTS
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR TRAPS (STEAM)
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

RANGE BOILERS
The Canadian John Wood Mfg. Co., Toronto.
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H Mueller Mfg. Co., Ltd., Sarnia, Ont.

ROOF FLANGES AND FLASHINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.

SASHWEIGHTS (Patent Eye)
Fittings Limited, Oshawa.

SEPTIC TANK VALVES AND SYPHONS
Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SOCKETS, WIRE ROPE
J. H. Williams & Co., Montreal, Que.

SOLDER
Canada Metal Co., Ltd., Toronto.
Hoyt Metal Co., Toronto.

STEAM SPECIALTIES
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
James Morrison Brass Mfg. Co., Toronto.

STEAM TRAPS
C. A. Dunham Co., Ltd., Toronto.

STOVES
Gurney Foundry Co., Limited, Toronto

STOVES, GAS AND COAL
Gurney Foundry Co., Ltd., Toronto.

SMOKE TEST MACHINES
James Morrison Brass Mfg. Co., Toronto.

SWIVELS, HOOK
J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL
The Canadian John Wood Mfg. Co., Toronto.
Wm. B. Scaife & Sons Co., Oakmont, Pa.

TESTING PLUGS
James Morrison Brass Mfg. Co., Toronto.

THUMB SCREWS AND NUTS
J. H. Williams & Co., Brooklyn, N.Y.

TRAPS, CAST IRON
Fittings Limited, Oshawa.

TOOLS
Wolverine Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., & Co., Brooklyn, N.Y.

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Empire Mfg. Co., Ltd., London and Toronto.
Fittings Limited, Oshawa.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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C. A. Dunham Co., Ltd., Toronto.

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WILLIAMS' SUPERIOR
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Better tools make better workmen—

And you can't buy a better wrench than a Williams'

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"The Wrench People"

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Western Canadian Agents: W. Bruce Campbell, 77 Confederation Life Bldg., Winnipeg, Can.

An Industry in Jeopardy

IT seems strange to say that the present exchange situation might mean the death of the shipbuilding industry, that during the war years jumped from a minor place to one of outstanding importance. Yet such is the case. Orders must come from abroad, and are coming from abroad, from France and Italy, from Holland and Scandinavia. Orders, plenty of them, to keep the yards busy for years, but on such ruinous terms that the shipping yards have been unable to accept them. This situation, and the remedies that have been proposed to meet it, are discussed in an article entitled, "A Great Industry in Peril."

Other Points of Interest in This Number:

STORIES

The Little Warrior .....Pelham Grenville Wodehouse
The Parts Men Play .....Arthur Beverley Baxter
The Taming of Pickles .....C. W. Stephens
Jeff Comes Home .....Alan C. Shore
The Worst of Brains .....Nan Moulton

ARTICLES

Pegging the Dollar at Par .....Agnes C. Laut
Saving a Newspaper .....J. L. Rutledge
A Galaxy of Maritime Portraits .....L. R. Joseph
The Wartime Premier Retires .....

Review of Reviews

Here are a few of the gripping informative articles to be found in this department:

"Royalty Has Gone to Work"
"Germany and Her Debt"
"The Truth About Coal Shortage"
"Uncle Sam's Huge Pay Roll"
"Natives of a Strange Island"
"70,000 Criminals in England"
"Duluth to Liverpool in One Bottom"
"The Pope An Unusual Figure"

Over 80,000 Canadian Families Buy

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"CANADA'S NATIONAL MAGAZINE"

JULY 15th ISSUE *Now on Sale At All News Dealers* *20c*

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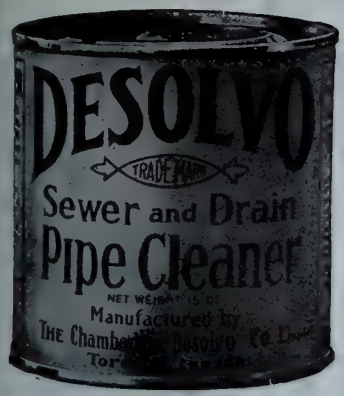

A Quick Selling Pair

For all around domestic utility, they appeal to the housewife.
Desolvo clears clogged pipes instantly by heat and chemical action.
K. K. Cleans Closets in a jiffy and makes a disagreeable job pleasant.
Naturally, they sell well and with profit.

Order from your jobber.

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MORE HEAT!

This is our No. 15 Boiler Coil. Extreme dia. 13 in. Has a large heating surface allowing for a maximum efficiency. Very easily installed and lasts an unusual length of time.

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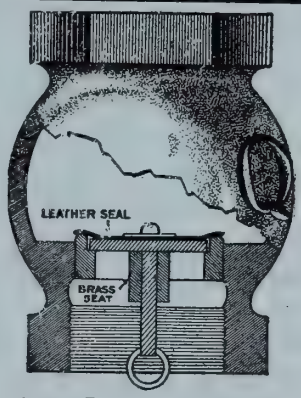

This is a "Q" Foot Valve

And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

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GALT., CANADA

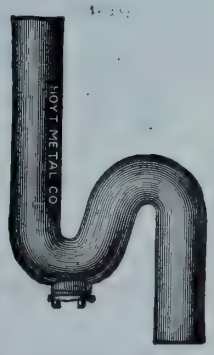
Be Sure to Specify:

HOYT LEAD PIPE
HOYT TRAPS AND BENDS
HOYT SHEET LEAD
HOYT WIPING SOLDER
HOYT CALKING LEAD

Sales in 1919 over $10,000,000

HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG



The Publisher's Page

TORONTO JULY 15, 1920

Improving Our Service

THE Directors of the Canadian Press Association decided in 1919 that the MacLean Publishing Company was the largest newspaper organization in Canada and must therefore pay the highest annual fee to the Association. The Montreal "Star," with its two big weeklies, comes second, but the "Star" group had been doing business for 18 years before the MacLean Company began. While we have not the details upon which the Press Association based their decision, we understand they figured that the MacLean Company had a larger advertising revenue. This is not the case. Lord Atholstan's properties probably carry a third more business, use more paper and have a greater total circulation. The MacLean papers on the other hand get more revenue from circulation; have to pay perhaps three times as much in salaries and wages and show considerably less profit.

Good service to readers first and advertisers next has been the cardinal principle upon which the MacLean Company has been built. In doing this, every man, woman and junior apprentice on our staff has had a share. We have tried to gather about us and train the best experts in the country. Here is an example of what we are doing:

In the recent annual examinations of the Toronto Technical School, session 1919-20, in the Typography branch—that is the department where they learn how to set type—only 27 boys out of the whole city passed, of whom 10, or nearly 38 per cent., were boys of our own composing room, while in two out of the three classes, MacLean boys stood at the head.

Several of our papers are the best of their class in the world, but we are still far from satisfied with the service we are giving. As we can afford it, as the country grows, as our business grows, the service will be improved. We ask our readers to take these Technical School results as an evidence of our efforts to serve them better and better, for by giving a superior training to these boys we are laying the foundation for the still better work we hope to do in the future.

Readers can help us to give them a better service by sending in—direct to the President, Vice-President, or General Manager—criticisms and suggestions.

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Of Course There Are Good Reasons

Why Over 28,000 Plumbers and Fitters Stick to "X" Boiler Liquid!

A HARD headed bunch are the plumbers and fitters. They don't part with their money so easily—nor for any sentimental reasons.

When they buy a product they must know that it *delivers the goods!*

The 28,000 or more men who buy and use "X" Liquid know that it *makes good* with a remarkable degree of regularity.

They know that "X" Boiler Liquid will repair leaks or cracks as permanently as welding—in a small part of the time welding takes—at a small part of the cost of welding or replacing—and at a *greater profit,* all things considered.

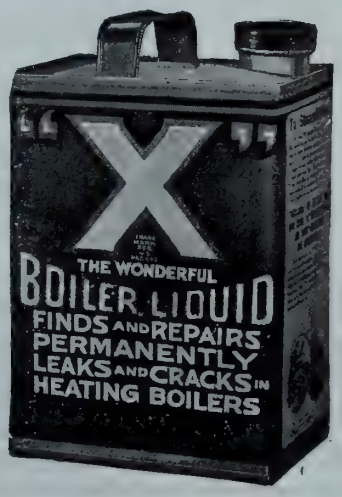
They know, furthermore, that "X" Boiler Liquid in addition to making permanent repairs that stand 2,000 pounds pressure, will clean out Rust and Scale in any part of the system where the water circulates. And "X" Boiler Liquid will prevent new Rust or Scale from forming.

Properly used, "X" Boiler Liquid will add as much as $1,000 extra to a man's yearly profits.

The fact that "X" is the original Boiler Liquid and is now the biggest selling product, simply emphasizes that its leadership is founded upon merit.

Beware of Imitations!

It's an old story—every excellent product that is a *leader* has a lot of "me-too" products trailing along. That's why it's safe for the busy plumber or fitter to write his order plainly—"X" Boiler Liquid. And to be sure you're not getting a cement, or meal, but a *scientific process that prevents foaming* look for the "X" on every can before it is sent to the job. That's the *surest* way to avoid disapointment.



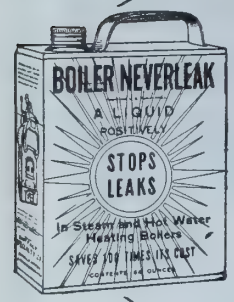
Every good jobber sells "X" Liquid, 99 out of every 100 manufacturers of boilers and radiators recommend, use and sell it.

Ask your jobber

"X" LABORATORIES

25 W. 45th St., New York City

Boston San Francisco



STOP that Leak with
Never-Failing
BOILER NEVERLEAK

Only Preparation Sold on a Million Dollar Guarantee

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No. 15

Cold Rolled Steel

You will find the famous B. & C. Floor and Ceiling plates have durability and strength. Our No. 15 style, narrow flange, is very popular on the Canadian markets. This is but one of many types. These service-giving plates may be had plain or handsomely nickel plated. Sizes ½" to 2".

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Stock now carried by our Canadian Representative
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Branches: Toronto, Winnipeg, Vancouver
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Iron Pipe Joint Cement

SETS LIKE GUM
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Packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans; 100 and 250-lb. barrels. Ask your jobber for prices or write us direct.
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Guaranteed to Repair Leaks in Boilers and Heating Systems
Qts.-$4.00 Gal. $14.00
THE NORTHWESTERN CHEMICAL CO.
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TORONTO WINNIPEG

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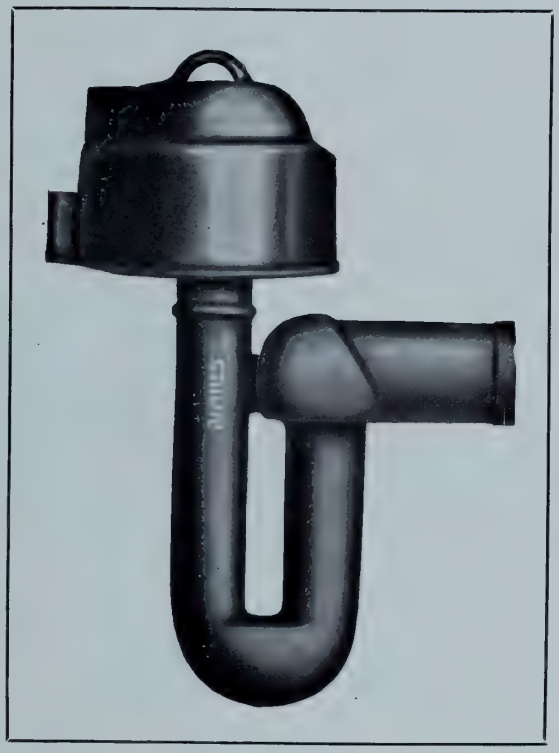
CAST IRON SOIL PIPE AND FITTINGS

Write for our bulletin and blue prints on Sewage Disposal Systems for country homes.



There is no reason why all the comforts of modern improvement of the city cannot be had in the country.

ANTHES FOUNDRY, LIMITED

MANUFACTURERS

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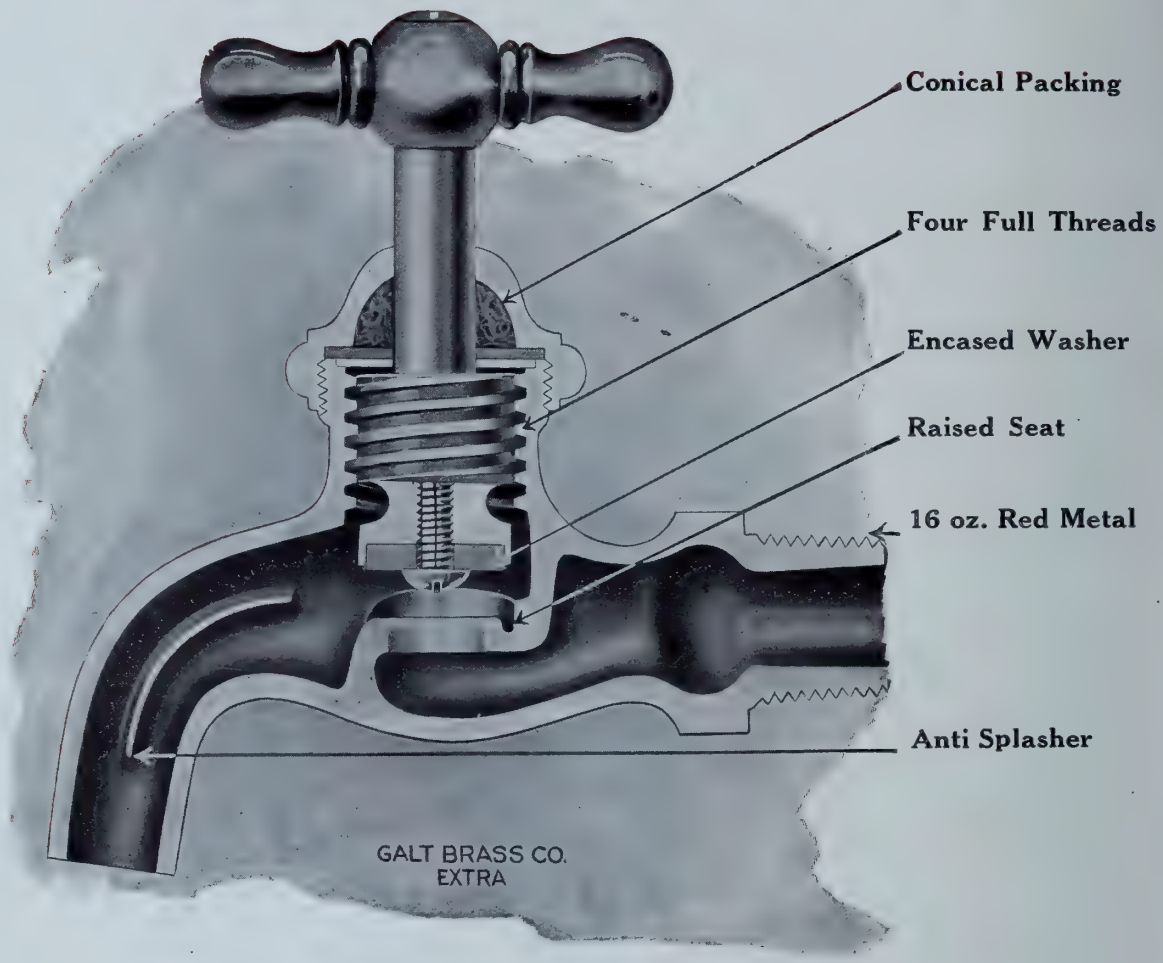

Easier Work for the Plumber

The man who installs "PerfectO" brass goods knows that he is simplifying his own work because "PerfectO" threads are uniform and interchangeable. Absolute accuracy is assured by the painstaking "PerfectO" gauge system which checks and corrects the slightest variation. All "PerfectO" brass goods are carefully tested and as near perfection as expert machinists can make them.

GALT BRASS COMPANY LIMITED, Galt, Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, AUGUST 1, 1920 No. 15

Rural Homes Need Sanitary Equipment

THE farmers of Canada are asserting their aggressiveness more and more by Government action and the formation of co-operative buying and selling organizations.

This progressive tendency is shown also in the home, where modern time and labor-saving equipment is being installed. Prominent among this will be noted up-to-date bath-rooms—running hot and cold water throughout the house, under pressure, and water in the barns for the stock.

EMPIRE WATER SUPPLY SYSTEMS have been serving hundreds of farmers in this capacity satisfactorily, even under trying weather conditions. We have **Water Supply Systems** in sizes to meet the needs of any farm, club, suburban home or summer resort.

Remember we are in a position to supply everything you need for this work—plumbing supplies, sanitary fixtures, and complete Water Supply Systems.

Write for our illustrated catalog on Empire Water Supply Systems.

EMPIRE MANUFACTURING CO., LIMITED

LONDON AND TORONTO, CANADA

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

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E. B. Plewes, 120 Lombard St., Winnipeg

SANITARY ENGINEER, August 1, 1920, Vol. XIV., No. 15. Published 1st and 15th of every month at 143-153 University Avenue, Toronto, by the MacLean Publishing Co., Ltd. Yearly subscription price, Canada, $1.00; United States, $1.50; Great Britain and the Colonies, 4s. 6d.; elsewhere, $2.00. Entered as second-class matter at the Post Office, Ottawa. Entered as second-class matter July 1st, 1912, at the Post Office at Buffalo under the Act of March 3rd, 1879.

TINKER TOM'S TALKS.

No. 271

PRIZE WINNING LIST

Cut out the list below, which was sent in by Mr. A. E. Wrigglesworth, Shelburne, Ont., and which won the first prize in our competition and next year when we have another competition, use this as the backbone of your list, in the meantime adding any new uses which may come to your notice.

1. Range boilers
2. " reservoirs
3. Eavestrough
4. Conductor Pipe
5. " heads
6. " elbows
7. " cut offs
8. " funnels
9. Vent pipes
10. Ventilators
11. Skylights
12. Refrigerators
13. Refrigerator linings
14. Refrigerator drain pipes and elbows
15. Refrigerator pans
16. Sheep dip tanks
17. Threshers' tanks
18. Air pressure tanks
19. Underground gasoline tanks
20. Expansion tanks
21. Shipping barrels
22. Hog troughs
23. Auto tool boxes
24. Stable troughs
25. Watering troughs
26. Shelf boxes
27. Ash sifters
28. Furnace casings
29. " smoke pipes
30. " cold air pipes
31. Washing machines
32. Water sprinklers
33. Automobile pans
34. Wash tubs
35. Wash tub covers
36. Pails
37. Garbage cans
38. " can covers
39. Wash boilers
40. Paint cans
41. Sprayers
42. Traction engine headlight lamps
43. Station lamps
44. Oil lanterns
45. Corrugated sheets
46. Shingles
47. Siding
48. Culverts
49. Well curbing
50. Garages
51. Granaries
52. Ridge Cap
53. Valley
54. Ornamental crestings
55. Corrugated ridge cap
56. Corrugated hip cap
57. End flashing
58. Side flashing
59. Starter strips
60. Weather vanes
61. Brick wall ties
62. Ash cans
63. Ash pans
64. Feed boilers
65. Cold air and smoke pipe elbows for furnaces
66. Plasterer's corner bends
67. Barn door hanger covers
68. Cornices
69. Wall plugs
70. Fire doors
71. Door casings
72. Flumes
73. Metal lath
74. Wash bowls
75. Fruit baskets
76. Oil cans
77. Fire pails
78. Chamber pails
79. Oily waste cans
80. Grain scoops
81. Tent sheets
82. Chimney caps
83. Chimney flashing
84. Side roof pipes
85. Ridge pipes
86. Oil tanks with pumps
87. Water coolers (drinking)
88. Open water tanks
89. Coal chutes
90. Sinks
91. Tanks for oil cook stoves
92. Eavestrough ferrules
93. Eavestrough outlets
94. Coal hods
95. Chicken coops (exhibition)
96. Feed boxes (barn)
97. Dippers
98. Dust pans
99. Fire bucket tanks
100. Well buckets
101. Strainer sink pails
102. Mortar boxes
103. Street sprinklers
104. Blower pipes
105. Poultry fountains
106. Poultry troughs
107. Silo filler pipes
108. Coal scuttles
109. Whey weighers
110. Milk cooling tanks
111. Wash sinks (creamery)
112. Laundry tubs
113. Lathe pans
114. Step laddertops
115. Tank linings
116. Funnels
117. Pipe straps
118. Grass catchers
119. Stencils
120. Drain pans for dishes
121. Sap pans
122. Barrel covers
123. Cuspidors
124. Barrel hoops
125. Auto radiator fillers
126. Hub guards (telephone poles)
127. Cable shields
128. Cable cradles (telephone)
129. Conduit sealing plugs (telephone)
130. Incubators
131. Children's automobiles
132. Porch decks
133. Chimney tops
134. Floats
135. Oilers
136. Cooling tanks for gas-engines
137. Chemical closets
138. Smoke stacks
139. Nail containers
140. Gasoline tanks for automobiles
141. Blades for windmill fans
142. Tails for windmills
143. Litter carriers
144. Snow shovels
145. Stove pipe dampers
146. Belt guards on machinery
147. Dinner pails
148. Cups
149. Kitchen cabinets
150. Grave vaults
151. Boiler jackets
152. Roofing for freight cars
153. Rural mail boxes
154. Roof jacks
155. Deck coverings
156. Water supply tanks for farm houses
157. Stove pipe collars
158. Chimney cleanout boxes
159. Flue plugs
160. Stove putty cans
161. Hoppers for grain crushers
162. Funnel damper stove pipes
163. Parts for horse collars
164. Wall protectors (around stoves)
165. Coverings for leaky row boats
166. Organ pipes
167. Organ blower pipes
168. Dust collector intakes
169. Gasoline tanks for motor cycles
170. Tool boxes for motor cycles
171. Gothic tiles
172. Conductor shoes
173. Deck nosing
174. Suction bilge pumps
175. First aid boxes
176. Rotary ventilators
177. Rotary screw fan ventilator
178. Revolving elbow cowls
179. Bellmouths
180. Step flashing
181. Ends for eavestrough
182. Stepladder braces
183. Coal shovels
184. Ice chests
185. Sink strainers
186. Hose bands
187. Boilers for canning racks
188. Dry measures
189. Wall coping
190. Refrigerator cars
191. Stand pipes
192. Window frames
193. Vats
194. Transformer tanks
195. Brick pallets
196. Drip pans
197. Ice cans
198. Metal boats

TINKER TOM.

Look for Talk No. 272 Next Week.

Because It Is It Isn't

By Booster Binx

How can a thing be is, and isn't at the same time? Exactly the same way that is, which is a verb, can also be a noun.

When you say is is a verb, then is is a noun.

Therefore, when I proceed to say, that because of what the Burnham Boiler is, it isn't; I mean it. In other words; it's the Burnham's **long** fire travel that makes its **short** coal bill.

It's both long and short at the same time.

Just to prove its longness is its shortness, have lifted the lid so you can see how that fire travel goes back and forth, **three times** the length of the boiler, on **each side.**

Get that? **Each side.**

To which, allow me to add; that next time we meet, am going to prove that, after all, what is, really isn't.

Lord & Burnham Co. Limited of Canada

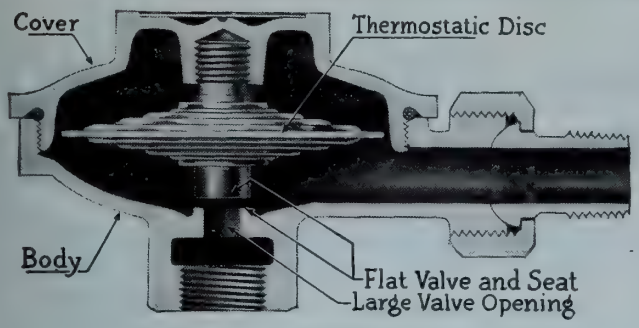
(Boiler Department)

ROYAL BANK BLDG.,
TORONTO

Factory :
St. Catharines, Ontario

Burnham Cosy Comfort Heat

B B



The DUNHAM HEATING SERVICE

Made in Canada

Saving B. T. U's.

The human equation enters so much into residence installations of low-pressure steam heating systems, that here we never make broad claims for fuel economy. Yet where good firemen keep exact fuel records in large installations, we find that surprising fuel-economy follows the introduction of Dunham Radiator Traps.

Absence of adjustments and repairs, claims attention also.

"The Dunham Hand Book" is full of facts. Send for your copy.

C. A. DUNHAM CO., LTD.
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KERR VALVES

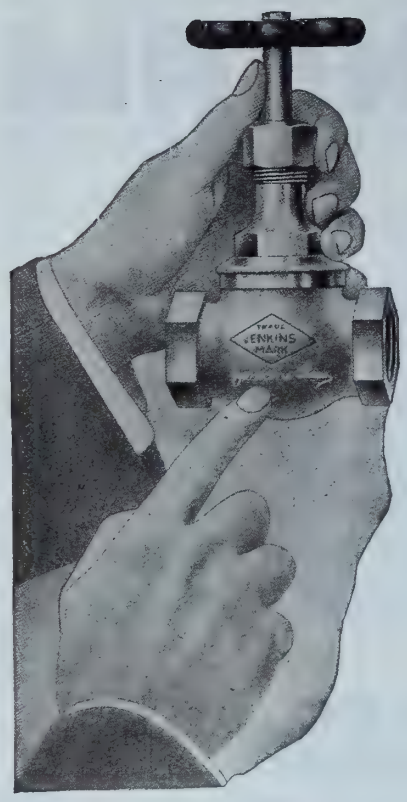
possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.

They insure the best of service, and stamp any job on which they are used as well equipped.

Use Kerr Valves. They give character to your work.

Catalogue No. 5 on application.

THE KERR ENGINE COMPANY, LIMITED
Valve Manufacturers
WALKERVILLE, ONTARIO



The Trade Mark That Says *"This Valve is Dependable"*

That is just what the Jenkins Diamond Trade Mark signifies **—absolute Valve Dependability.** It is cast upon the body of every genuine Jenkins Valve; put there as a protection against inferior imitations and a guarantee of lasting service under every condition of usage.

In every line of industrial endeavor—in power houses, water works, railroad shops, factories, office buildings—wherever good valve service is vital Jenkins' Diamond Trade Marked Valves are giving a service in keeping with their 56 years' reputation.

Catalog No. 8, free on request, pictures and describes the complete line

—A Valve for every purpose.

Obtain Jenkins' Valves from dealers everywhere.

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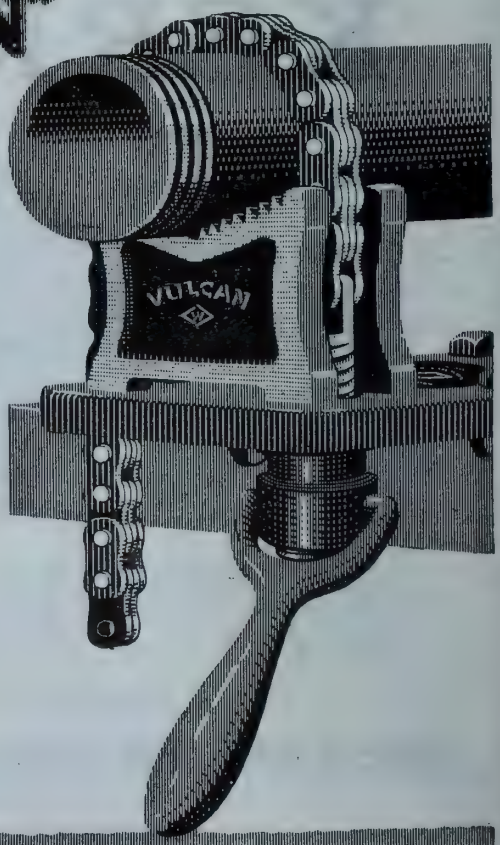
Agencies in all the Principal Countries of the World

WILLIAMS' "VULCAN" DROP-FORGED CHAIN PIPE VISE



IN general, you know there's no comparison between a cast and a wrought tool.

The same principle applies to pipe vises.

Williams' "Vulcan" No. 4, for 3/8 to 8 in. pipe, is stronger, quicker in action and cheaper.

3 sizes for 1/8 to 8 in. pipe—at your dealer's.

J. H. WILLIAMS & CO.
"The Drop-Forging People"

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BUFFALO, 77 Vulcan St.,
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W. BRUCE CAMPBELL, Western Canadian Agent, 77 Confederation Bldg., WINNIPEG

The Joke-Smiths Losing Out

A Little "Straight Talk" to the Canadian Plumbing Trade

Stage comedians, comic writers, motion picture producers and a section of the general public periodically aim their ridiculous "fun-pokes" at the plumbing craft. Only in a few cases are they meant, or taken seriously. Someone must be the "goat," and the plumber being a jolly good fellow has for years past been selected as the burden-bearer.

A change is taking place, however. During all the years that the "funsters" have been playing at the expense of the plumber, the latter has been busy in a quiet but effective manner.

Through constant application to, and study of, the vital needs of the public the plumber is throwing off any old-time prejudice which may have existed. To-day we point with pride to the accomplishments of the craft in making this a better world to live in. The many modern conveniences which are adding so much to the health of our people; to the joy of living, and to general all-round betterment of the masses is due in no small measure to the effort of the plumbing trade.

THE "plumbing business," is only in its infancy. Greater things are promised for the future. The joke-smiths are losing out. The plumbing trade is marching triumphantly along the road of progress. We can all take part in this great march.

In the old days it was said that, "Competition was the Life of Trade," but to-day we are more inclined to believe that, "Co-operative Competition is the Life of Trade."

Our service department is glad to co-operate with you in any of your trade problems. Let us work together for

"QUALITY, EFFICIENCY and SERVICE"

CANADIAN BRASS GALT ONT

THE CANADIAN BRASS CO.

LIMITED

GALT, ONTARIO

TRADE B.O.T. MARK

Pipe Fittings

Made in Canada

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CAST IRON FITTINGS
With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

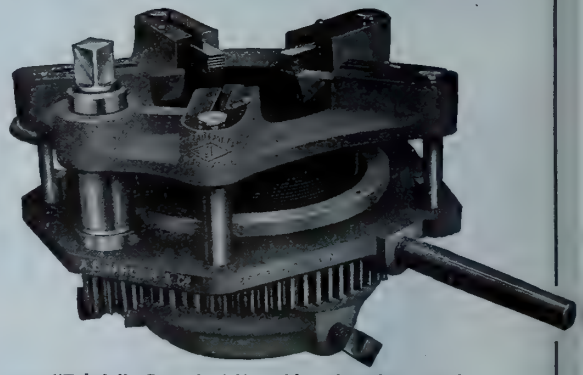
RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS
With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

JARDINE and TOLEDO PIPE THREADING TOOLS



"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2½ to ½ in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or jim cracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

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Sole licensees to manufacture and sell Toledo Pipe-Threading Tools in Canada.
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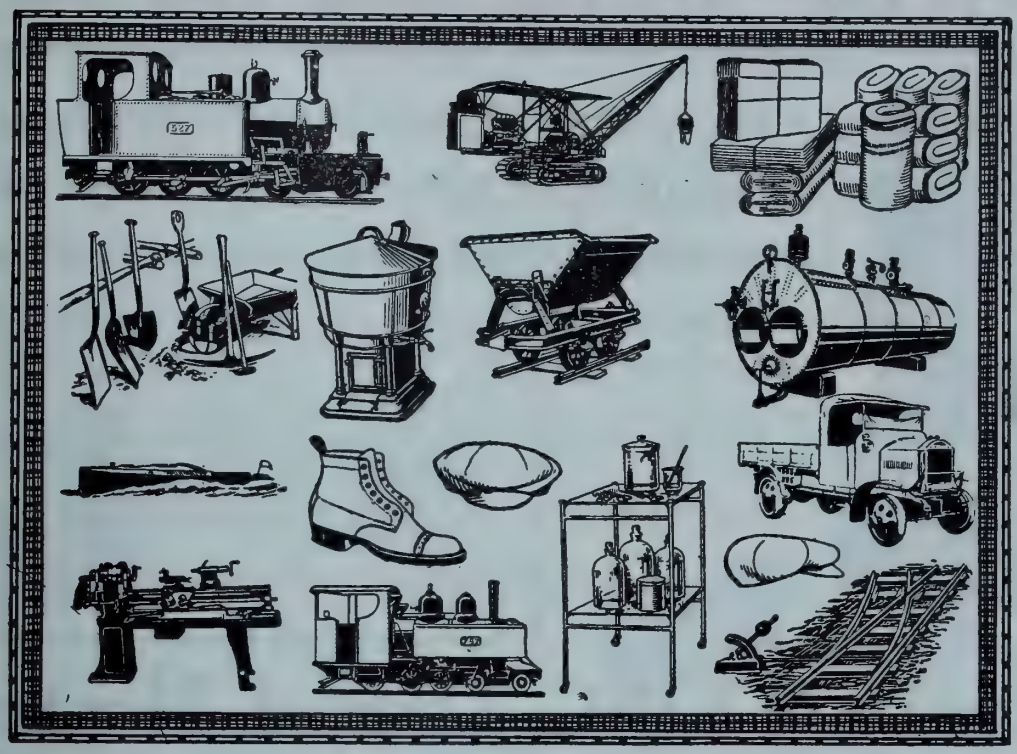
Brockville and East—J. R. Devereux, 358 Beaver Hall Square, Montreal.
Belleville and West—W. H. Cunningham & Co., 183 Church St., Toronto, Ont.

MINISTRY of G R MUNITIONS



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Have stood the test of time.
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Your inquiries and orders will have our best attention.

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Your Jobber can Supply

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When the efficient, modern advertiser finds his reputation firmly established, the confidence of the trade firmly held, distribution ideal and his product and trade-mark thoroughly familiar, he directs the full force of his continuous advertising toward increasing the uses of his product by showing the dealer and his salesmen each week new uses for his goods that both stimulate sales and increase the consumer satisfaction with the product.

A message to the whole plumbing trade of Canada through Sanitary Engineer is productive, profitable and reliable "business insurance" for the future.

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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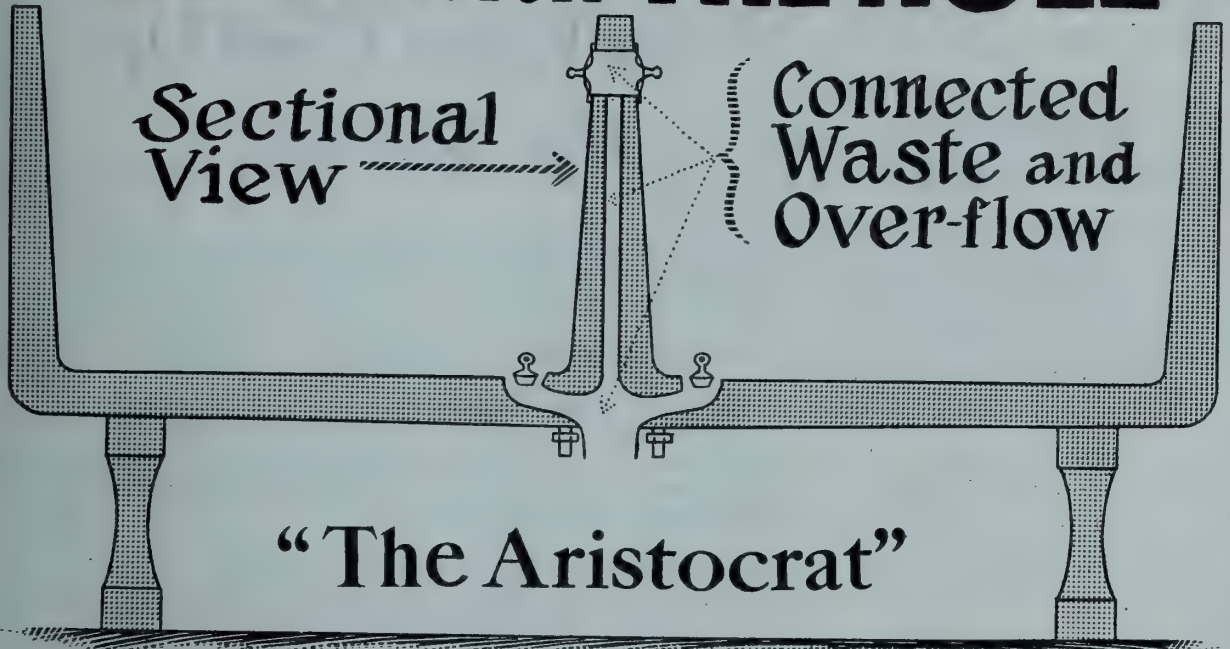
The Tub With "THE HOLE"



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The House That Quality Built

C.M.C. products are all quality products. Highest quality has always been the hard and fast rule, whether it is lead pipe or easy wiping solder. We sell only superior goods. Our reputation is for quality.

Confidence is Created By Satisfaction

There's lasting confidence established when you know that there is a reputation at stake behind the goods you buy, confidence is the safety valve of satisfaction. For quality and service C.M.C. products stand supreme.

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The Canada Metal Company, Limited
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Everything for the Plumber

Ask Your Jobber for

THE "ARISTOCRAT" LAUNDRY TUB
The Tub With the Hole

EASY WIPING SOLDER
It Works Like Putty and Sticks Like Glue

"—an Extra Card Up His Sleeve"

NORWESCO Iron Cement

A metallic paste for sealing leaks too large to be bridged by a liquid. Hardens in a few hours, forming a permanent metallic repair that withstands great pressure. Use Boiler Se-Ment-Ol to close up smaller crevices around large leak. Result: A completely leak-proof repair.

"And," continued the surprised manufacturer, "you **guarantee** the installation, when completed, will be leak-proof?"

"Positively," replied the progressive fitter.

"Well, you win," concluded the manufacturer, "the contract is yours. Anyone that shows no hesitancy in promising a leak-proof job in these rush times must have an extra card up his sleeve. So, go to it—and good luck."

The fitter in this instance was perfectly safe in promising a leak-proof installation. He figured on including **Norwesco Boiler Se-Ment-Ol** in his specifications, knowing that if any leaks did develop they would be quickly located and **permanently** sealed by this self-acting repairer.

You, too, can **guarantee** leak-proof jobs. Just include **Boiler Se-Ment-Ol** in your original estimate and apply it after cleaning out the boiler—just as you have applied it for old boiler leaks.

Sold everywhere—in the handy cone-topped can that prevents spilling and wasting.

No foaming or disagreeable odor. There's a coupon below—mail it to-day.

BOILER
SE-MENT-OL
REG. U.S. PAT. OFF.
1 QT U.S STANDARD 5/6 QT. IMPERIAL MEAS
NORWESCO
REPAIRS LEAKS IN HEATING SYSTEMS QUICKLY AND PERMANENTLY
FINDS THE LEAK AND FIXES IT

The Northwestern Chemical Co.

180 Street - Marietta, Ohio, U.S.A.

CANADIAN FACTORY: MONTREAL

WRITE TO-DAY

BOILER SE-MENT-OL

THE NORTH-WESTERN CHEMICAL CO.
1808 State St., Marietta, Ohio.

Gentlemen:—Please send me your special discounts and the name of the nearest jobber who sells **Boiler Se-Ment-Ol.**

Name .....

Address .....

Established 1907 Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO, AUGUST 2. No. 15

Predict Big Trade in Electrical Goods

With Second Largest Available Horsepower of Electricity in the World Canada Has Big Future in Sale of Electrical Goods—More Plumbers Entering This Field Every Day—Development of St. Lawrence Waterways Scheme Will Develop Power Equal to Millions of Tons of Coal Annually—Power May Be Cheap Enough to Use for House Heating

EVERY day reports are forthcoming pointing to the extension of the handling of electrical supplies through the plumbing trade. A big future trade in electrical goods is forecast by some of the leading men representing all branches of the trade, and this is confirmed by the fact that Canada's available power is the second largest in the world, being second only to that of the United States. The actual figures are shown herewith. Should the St. Lawrence water-ways proposal be put into effect, Canada will benefit to a much greater degree than was heretofore dreamed of, for it will then have many millions more horsepower of electricity and will make power so cheap that it will come into greater use in the home. There is no question the advantages of the use of electricity for comfort and labor saving in the home have only been touched lightly, and that the future has much in store. This being the case electrical supplies represent a valuable line for the plumber to adopt in connection with his trade.

The manager of a prominent Western firm dealing in plumbing goods, electrical supplies, etc., states that advertising and display are foremost factors in the sale of these goods. Display is considered to be such an important factor in the sale of electrical goods in this store that one of the most prominent windows is permanently reserved for such displays.

He believes in the outstanding value of suggestion in the sale of electrical appliances, this being due in some part to the large number of new devices constantly coming on the market which have for their object the increasing of comfort in the home or elsewhere, or the saving of labor by applying mechanical methods. Due to the fact that the majority of such devices are well worth table investigation, the average customer is found to be interested in watching all such new developments. For this reason they find that if the customer is given plenty of opportunity to see what is new, and to investigate the working of such devices, and test their utility, they are a long way toward being sold.

CANADA'S AVAILABLE POWER SECOND LARGEST IN WORLD

The horsepower of electricity available in Canada is the second largest in the world, being exceeded only by the United States. Canada's available horsepower as compared with other countries, is as follows:

Canada	18,803,000
Austria-Hungary	7,460,000
France	5,587,000
Germany	1,425,000
Italy	4,900,000
Norway	5,500,000
Spain	5,000,000
Sweden	4,500,000
Switzerland	2,000,000

The possibilities for the increased sale of electrical appliances are as great as is demonstrated by these figures of available power. With the further development of its sources of power Canada will have a comparatively cheap rate for electric current and electrical devices will then come into greater use. Boosting sales through displays and advertising will help to bring Canada to the forefront as a user of a large portion of the world's production of electrical appliances.

Counter and Window Displays in Harmony

Counter displays are also an important accessory to the window and other forms of display used in this store, and the plan is generally followed of having each display work simultaneously toward the same objective so that maximum results will be secured. This, of course, applies particularly where some seasonable lines are outstanding such as electric toasters, grills, etc., for the hot weather.

The window displays are always arranged with the idea of carrying a homelike appeal. The manager believes that there is no better way of selling the customer electrical goods than to show them in such a way that he has no difficulty in picturing the use of them in his own home. Whether it be winter or summer the store window for electrical devices always carries a homelike appearance which commands attention. It is recognized that certain electrical goods have a greater utility in certain seasons than in others and the thing to do is to emphasize the greatest utility of the article when it is seasonable. Thus if percolators, grills, toasters, etc., are shown in the window display, models of ladies are shown seated at a table enjoying afternoon tea. Toast is on the toaster, some other delicacy is shown cooking on the grill and the percolator is steaming. What could be more inviting on a cold winter day? Or what could be more inviting on these hot summer days than to see a similar arrangement with an electric fan substituted and the family sitting down to a light luncheon prepared by the use of these devices right on the table, and eliminating the hot drudgery of the kitchen? These are the points which strike home to the prospect who stops to see "what it is all about," and when he commences thinking about these matters he cannot help but agree that it is all very true, and then he is in the right mood for making a purchase. Of course, before a sale can be completed, he must be brought into closer contact with the goods, so a neatly written card is placed in the window inviting an inspection of the electrical department in the store.

All the goods displayed in the window bear a prominent price ticket, and the same plan is carried out in all departments of the store.

The manager has some display ideas which he is planning to work out. These

Women---Go on Strike

Tell hubby that you are sick and tired of putting up with the old backbreaking, nerve racking methods of keeping the house clean day in and day out. Tell him you must have a HOOVER electric suction sweeper. Don't let him pacify you with some other make because it will likely be the first and last cleaner you will get and its up to you to see that you get the best.

The HOOVER has no competitor. Other cleaners simply clean by suction but the HOOVER is an electric vacuum cleaner—and more, the HOOVER is an electric carpet sweeper—and more, the HOOVER is an electric carpet beater. It is three cleaners in one. And therefore neither buried dirt nor clinging dirt, nor surface dirt can remain when you just run your HOOVER over.

The HOOVER is the largest selling cleaner in the world, because it is the most thorough cleaner. They have built a Canadian factory to make cleaners for the Canadian trade, and we are now in a position to fill the enormous demand for this wonderful labor-saving device.

PLUMBING COWANS BRANTFORD ELECTRIC

COME TO-MORROW AND LET US DEMONSTRATE

$5.75

WILL PUT A HOOVER IN YOUR HOME

THEN A FEW EASY PAYMENTS THAT YOU WILL NOT FEEL.

COWANS

PLUMBING 121 COLBORNE ST. ELECTRIC

JUST RUN YOUR HOOVER OVER

IT BEATS... AS IT SWEEPS AS IT CLEANS

include the use of separate rooms or sections for the display of ceiling and wall fixtures. He has proved the value of display in moving dead stocks. One instance he cites concerns the moving of a stock of expensive lamp shades which prior to his taking charge of the department were almost looked upon as dead stock. To liven things up a board was constructed with a number of sockets and a sample of the various shades illuminated. This board was placed in a prominent location near the entrance to the department and sales increased 75 per cent. as result. The board was nothing unusual, and the same plan could be adopted by any dealer with practically no expense, yet it proved to be the stimulant which was required and the results were forthcoming.

In the counter and showcase displays of the department the point emphasized is to get the seasonable and new goods prominently before the eye of the customer. Frequent changes can be made as the seasons go and come and as new lines are placed on the market.

Newspaper advertising of electrical supplies is an important factor in the trade, and this medium is linked up with the window and store displays.

Anticipates Large Future Trade

A very large sale of electrical devices in years to come, both in connection with the regular trade, and that connected with the automobile accessory trade is anticipated. The demand for labor-saving equipment is especially active and this is one phase of the business which calls for some discrimination in purchasing owing to the large number of new lines which are constantly appearing. As a rule the store does not depart far from the rule of selling only staple, nationally advertised lines. The scarcity and high cost of domestic help is mentioned as one of the chief reasons for the big demand for labor-saving electrical equipment, such as sewing machine motors, vacuum cleaners, washing machines, etc.

It has been the experience of this department that while a certain class of trade rushes for bargain goods, the standard nationally advertised lines of electrical goods form the foundation of trade. In a few cases such as in the sale of electrical irons where prices of the best makes have been forced up by market conditions, the sale of cheaper grades has temporarily increased, but a little intelligent sales talk convinces the customer that the standard line is cheapest from the standpoint of service, and therefore trade in high-class lines does not suffer. According to the manager, the stocking of only well-known staple lines as compared with stocking fancy lines which turn slowly, helps to maintain a fair price level and fair volume of trade for staple lines, even when prices are forced up.

NOVEL INVENTION TO HEAD OFF THEFTS

HALIFAX.—A Halifax inventor and vocational student, James W. Howard, is applying for Canadian and American patents for a new electrical device which promises to eliminate a great deal of loss now suffered by large users of electric light bulbs and lights.

Mr. Howard's invention is an improvement in safety locks for tungsten and other electric light globes, and is specially designed for use in public buildings, factories and other places where a large number of lights are used. In such places many of the lights are often stolen or otherwise misappropriated, and this invention will render such globes useless to those who may take them, as they cannot be used on any other socket than the original one, nor on the original one itself again owing to the presence of the safety lock. It is of no further use once removed from the socket.

Mr. Howard intends to have the lock constructed in such a way that it will be simple and applicable to standard sockets and the lamps and bulbs engaging therewith.

BIG INCREASE IN CANADA'S TRADE WITH ITALY IN PLUMBING AND METAL GOODS

Canada's trade with Italy for the year 1919, figures for which have just been issued, amounted to $19,130,079 in value, being almost three times the value of Canadian exports to Italy for the corresponding period of 1918 and much larger than in any year past. It is therefore interesting to note what channels of trade with Italy are being chiefly developed. Among the largest exports to Italy during the year 1919 were locomotives, brass rods, sheets and tubing, hardware, metal, asbestos and mineral wax. The total value of Canadian exports to Italy of iron and its products, including agricultural implements, locomotive and parts, hardware, machinery, tubing, vehicles, tools, etc., was $2,931,603. Non-ferrous metals and their products to the value of $33,387 were exported, and non-metallic minerals, such as asbestos, coal, carbon, etc., to the value of $425,233.

Heating and Ventilating

Central Station Heating

Increasing Demand for Conveniences of Central Station Heating System—Big Field for Engineers Who Have Devoted Attention to Such Installations.

Written for Sanitary Engineer by N. A. Kearns.

THE functions and the conveniences of the central heating plant are, in some measure, exemplified by the heating systems found in large buildings, such as apartment blocks, schools, factories, and hotels. However, it is not to the relatively small heating plants installed in such buildings that we wish to direct the reader's attention; but to those larger systems where the heat generated by a boiler in an isolated boiler room is conveyed to, and distributed through, a number of separate buildings.

The separate buildings of institutions such as universities, barracks, hospitals, and manufacturing plants are, as a rule, heated from a central station. And in some towns, the houses on street after street are kept warm by heaters that may be found several miles away from those streets on which the houses stand.

Present social conditions seem to indicate that the central heating plant will sometime, in the not too distant future, be classed with such modern necessities as central lighting, central power, and central water-supply systems. The ever-growing taste of the public for conveniences that will do away with the responsibility of procuring an individual fuel supply for the winter months, and that will lessen the work of caring for a domestic heating system, is sufficient evidence that the average man is as unwilling to fire a small boiler as he is to draw water from a well or to depend on coal-oil lamps for light.

And this increasing demand for the conveniences of the central station heating system will call for the services of those engineers who have applied some profit in the discovery of how such plants have been installed in the past.

Almost a Virgin Field

In this article we cannot do much more than describe in a general way the principles on which the installations of central station heating plants are based. We must leave much of the descriptive detail to be taken up at a later date.

Indeed a great deal must still be done in the way of devising schemes to reduce the cost of installation, and the costs of operating these large heating plants; for it is the cost of these systems that works against their general adoption. Just so soon as the cost of heating by the central station system of heating becomes reasonably close to that of a number of small units, just so soon will the curtain go down on the last act of the individual heating plant.

There are certain firms that own and make use of patented devices whereby the operating costs of plants of this nature are materially reduced. In many cases the heating contractor is well advised to pay the royalty demanded for the use of such labor and fuel saving apparatus; because where high-grade apparatus is superior to any substitute that may be found, the question of first-cost should not be considered. However, there are many cases where the inventions are simply illustrations of a principle that may be applied in a different way; then the engineer can save his client from paying royalties without becoming involved in a dangerous piratical experiment.

We can see from this that the field of central station heating is wide and almost uncultivated. There is much room for improvement both in the matter of design and in the matter of operating these plants; therefore the progressive heating-engineer will find scope for the exercise of his ingenuity when he undertakes to design or to install a central station system of heating.

The Cost

The cost of installation and the cost of up-keep will vary with the type of plant used; also with the circumstances affecting the construction.

The cost of operating the plant will depend on whether use is made of exhaust or live steam as a heating medium.

The most successful type of central station heating plant—from the standpoint of economy of operation—is that where the steam used for heating purposes is a by-product of a power plant. Hence later we shall have occasion to refer to the proportion of heating service as related to power service.

Where boilers are fired for heating purposes only, the operating costs are in direct proportion to the costs of fuel, attendance and up-keep. Where exhaust steam is used the operating costs must be based on what additional fuel, over that required for power service, it is necessary to burn in providing for the heating plant, (which is never a great deal with well proportioned systems), and also on the cost of maintenance and repairs.

The method of estimating these various costs, and the resulting charges that should be made, will be shown later.

Systems

Central station systems are installed both for hot-water and for steam-heating plants.

There are certain advantages that one system has over the other, and also corresponding disadvantages.

The Central Station

The central station of the plant may consist of the heating boiler, together with such pumps and other apparatus as may be required to drive the heating medium through the distributing system. Or the central station may consist of steam-engines, dynamos, motors, pumps, feed-water purifiers, etc., in short, it may contain everything necessary to provide heat, power, light, and water to a number of buildings.

In a later article we expect to touch upon the subject of engine-room equipment; but for the present we will deal only with those details that have a direct bearing on the subject of heating.

Many engineers favor forced-circulation hot-water heating systems on the

NEW TAXES WILL YIELD 100 MILLION A YEAR

The results to date of the new direct taxes imposed by the budget in the form of luxury, excise, turnover and other taxes indicate that they will bring a very substantial addition to Canada's revenues. The prediction that the new taxes would bring $100,000,000 annually promises to be confirmed and the machinery of collection is reported to be working smoothly and satisfactorily.

ground of cheapness of installation. The claim is made that, because of the low temperature required, expensive provision for off-setting contraction and expansion need not be made. This same low temperature also makes unnecessary any great amount of pipe covering to prevent the heat escaping from the mains to the surrounding earth.

Little, or no, sub-drainage is required with the forced hot-water system.

There is no loss of water, and thus, no waste of heat by way of the sewer. The temperature of the water can be easily controlled to suit varied weather conditions.

The advantages of the system will be pointed to as we direct the reader's attention to certain details.

It is our intention to start in this description by first taking up the subject of the radiators; then we will go on to the piping arrangement of each house; the street system of piping, and from there back to the central station.

In describing the system of street mains we shall have to refer to more than one arrangement of piping; because there are a number of systems of piping differing in principle and detail, now in common use.

Radiation

The radiation required for each house may be figured by the same methods as used for an ordinary gravity system, and then a factor added to offset the temperature conditions of the water supplied from the street mains.

The temperature of the water must be considered. The loss of heat from the mains is somewhere about one degree for every four hundred and twenty feet in length. This loss, of course, depends on the weather, and on the class of pipe covering used.

The temperature of the water may run as 211° in cold weather, down to 115° in mild weather.

Remember that in figuring radiation the distance from the source of heat supply must be considered.

If the radiation is figured to heat the building to a temperature of 70° above zero when the outside thermometer registers 20° above, and the temperature of the water at 165°, a fairly constant temperature may be maintained in the house by raising or lowering the temperature of the water.

In some of the houses it may be found that 60 per cent. more radiation is required for a system of this kind than for an ordinary job with a separate boiler. This, as we have already stated, will depend upon the distance of the radiators from the central station.

The radiators,—of the ordinary hot water type—are tapped at opposite ends; one end for the feed, and the other for the return. Both connections are valved. Each radiator is fitted with a substantial air valve.

House Piping

The lay-out of the piping system in the house may be just as the double main circulating system of the ordinary gravity job. When the piping is laid out in that way it is not necessary to place two valves on each radiator.

The system of house piping that is generally followed in plants of this description is that of the single circuit.

In the single circuit, the main house pipe is run from the street connection to the street return, without a break. The flow pipe to each radiator is taken out of the top of the main. Between the flow and return connection of each radiator, there is placed in the line of the main, a reduced connection; so that the direct circulation through the main will be diverted up to, and through, the radiator. Then when the radiator is turned off there still will be a circulation effected in the main.

Where the street main serves both as a flow and return, the house service pipe is in size, as a rule, 1½ inches for each 1,200 sq. ft. of radiation.

When a separate return is provided, the house connection is about 1 in., regardless of the amount of radiation served. The 1-in. pipe is controlled by a valve, and then on the house side the pipe is increased to the size required. The size of the house pipe is in proportion to the number of small circuits served. A one-inch pipe will provide for two circuits; a one and a quarter inch will provide for four; an inch and a half will provide for eight; and a two and a half will provide for sixteen.

A thermostat valve is placed in the return pipe to control the velocity of the water running through the system.

Street Piping

The street mains may be any one of the following:—

The **single-main closed-circuit** system, where the water passing through the piping system of one building afterwards passes through every building on the line before it returns to the heater. In this system the street main is of the same size throughout its entire length. But even with this necessity of having larger pipes than in the double main system, the cost of installing a single main system is somewhat less than that of the double main system. The house service feed pipe is taken out of the top of the main, and the return connection is made in the side of the same main.

The **double-main open-circuit** system, when the water passing through one building does not pass through any of the other buildings. In this system the water passes from the feed pipe to the house system, and, then back to the main street return piping. In a system of this type, the feed mains are reduced as the individual circuits are taken off, and the return mains are increased as the return connections are made.

In the **double-main closed-circuit** system, the arrangement of pumps is so made that there is a balanced pressure on both sides of the circulating pumps. The pressure at the station is proportioned to the distance the water must be forced; the speed of circulation required; and the height of the buildings, etc.

Size of Street Mains

The size of the street main should be in proportion to the amount of water required. The amount of water required depends on the temperature drop, the weather, and the efficiency of the radiation, The amount of water required may vary from 5 to 19 lbs. of water for each square foot of radiator per hour. If there is a difference of 110 degrees between the temperature of the water in the radiator and the temperature of the surrounding air, and if we are allowing for a difference of 10 degrees in the flow and return pipes, we must provide for 18 lbs. of water per square foot of radiator. A difference of 20 degrees in the temperature of the feed and return pipes will reduce the quantity of water required by about sixty per cent.

In the return branch from each house there must be placed a **choker**, to control the amount of water supplied to that building. The choker may be a small pipe or a metal disc. The size of the choker is proportioned by the same method as used in fixing the size of the main pipes, viz: the factors of radiation, and of pressure and temperature drop must be considered.

Pipe Covering

When heat is obtained from a central heating plant, it is, as a rule, desirable to cover the house risers as well as the cellar mains. When the risers are covered it will be easy to control the temperature of the rooms when no heat is required.

The cellar mains may be covered with hair felt, air cell covering, or several layers of asbestos paper.

Many different systems of covering the street mains of central station hot-water heating systems have been tried out with more or less success. In the section of this article dealing with steam systems there will be given a description of various pipe coverings as applied to steam heating plants. Any of the coverings that will then be described could be used for the pipe coverings of hot-water systems; but inasmuch as the temperatures of hot water pipes are comparatively low, when compared with steam pipes, the extra expense of such methods of insulation is hardly called for.

About as serviceable a method of heat insulation as has been so far devised is that where the pipes are run in a wooden box. The box is usually made in separate sections so that there are two dead air spaces between the outside covers and the pipe. The outside boards must be creosoted to protect them from dampness.

Expansion

While the expansion, and the contraction of the piping in a hot water heating system is not nearly so great as it is in a steam heating system, some provision

Continued on Page 28.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

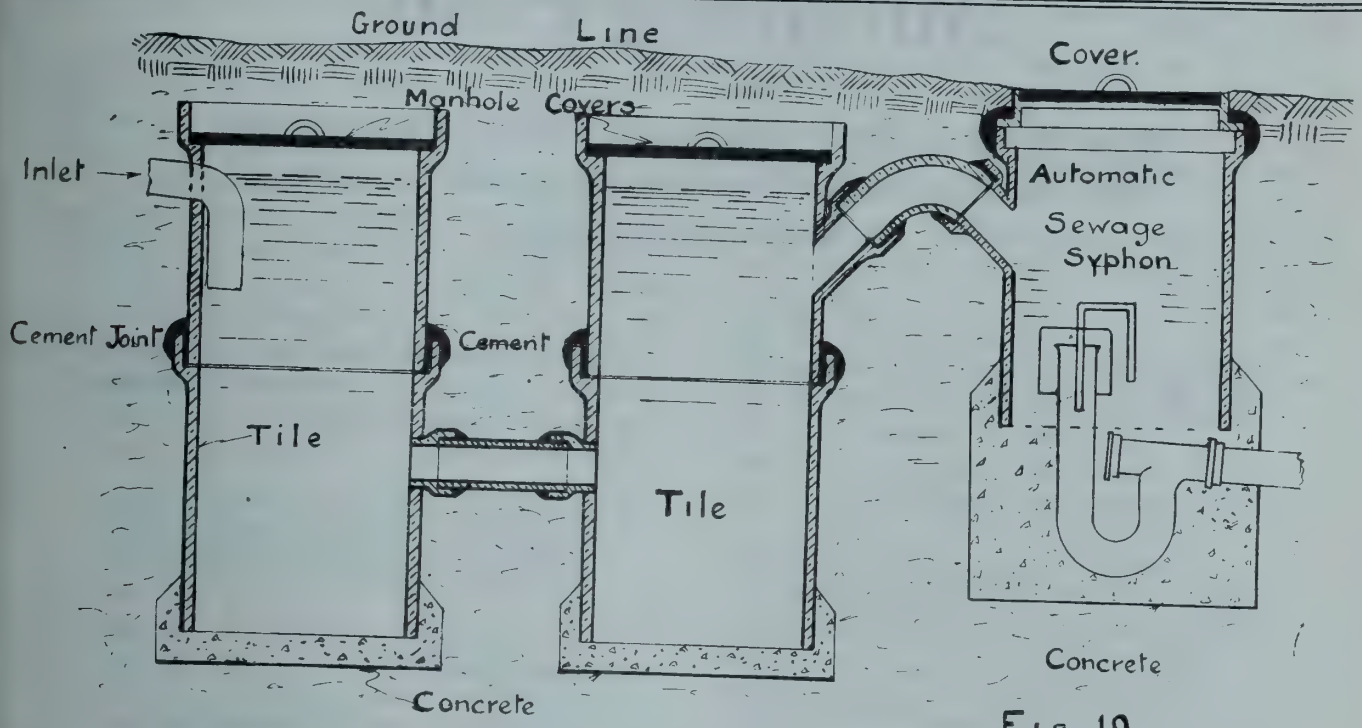


FIG. 19.

Article No. 13 of the Series—Illustration No. 19

FIG. 19 shows a section showing the sewage passing through three separate chambers, the last one being the automatic syphon chamber and set at a higher elevation to provide for a better filtration area. The pipes should have the T and Y branches as shown in the sketch and should be provided with airtight stoppers capable of easy removal for inspection purposes. This type of septic tank has given good results but should only be used for small families.

The construction of the tanks previously illustrated is best done in Portland cement concrete mixed in the proportion of 1 part Portland cement, 2 parts sand and 4 parts crushed stone or gravel. The bottom of the tank should be constructed first in 4-inch to 6-inch concrete, on same build up your inside and outside forms (if the earthen walls of the excavation will stand firm only inside forms are required) which are generally built up of 1-inch matched and dressed lumber properly framed with the holes cut out for the inlet-connecting pipe between the two chambers and outlet. Fix the forms so that concrete figured on working drawings, leaving the required space of usually 6 or 8 inches is between them, according to the thickness of a space of 6 to 9 inches between the outside forms and the earthen wall.

The concrete then should be run fairly wet and well tamped so as to bring the fine aggregate to the top so as to leave a clean, smooth surface for the inside tank walls. When the concrete reaches the level of the holes for the pipes the cast iron or vitrified pipes should be set in place and the concreting continued until even with top of forms.

The roof of the tank should be self supporting and it is necessary to reinforce same with ⅜ inch steel longitudinal and crossrods at 5 to 7 inches centres governed by the actual span, which should be fixed about one inch from the lower edge of the slab or concrete roof. The formwork of the roof is constructed and laid on the four outer walls of the tank, provision being made for the cast iron manhole covers, which are placed in position on top of the formwork and care being taken that the upper edge of the cover is level with the ground. The concrete is then run over the whole roof area to a depth of one inch; the steel rods are then placed at their

(Continued on page 19)

Improved Service in Spite of Advancing Costs

Paper Up 300%—Engravings, Wages, Mechanical Supplies, Etc., Have Made Big Jumps—Plans Laid for Further Development in Service to Subscribers.

DURING the past five or six years the retail trade has been faced with a long series of advances in costs, which meant many readjustments of selling prices to the consumer.

Newspapers, such as SANITARY ENGINEER, have had similar difficulties to contend with. Merchants know how cost of paper has advanced. They are large buyers of wrapping paper and paper bags themselves. Our experience indicates that paper has increased in price at least 300% during the above-mentioned period. The general world-shortage in paper and the big demand on Canadian pulp and paper mills has been one of the big reasons for this advance. In some of the Western Canadian cities there has at times been a famine in paper, and in the United States many periodicals have had to conserve it against their will. One large national United States weekly, for instance, has not been sending any papers to Canada for the news stands for many weeeks, and has had to be content with supplying the regular subscribers. In fact they are not going after new subscribers in Canada.

ENGRAVINGS UP 200%

The making of engravings for illustration purposes has increased an average of 200% in cost. All mechanical supplies such as ink, presses, type metal, etc., have gone up similarly.

An increase of 108% has been made in wages in the mechanical department of the MacLean publications.

There has been an increase in rentals of about 100%.

On January 1, next, the postal rate on papers like SANITARY ENGINEER will be increased 200% and in 1922 the increase will be 500% over what it is at present.

During the past year SANITARY ENGINEER has greatly increased its editorial service in spite of advancing costs. Market reports are now being received from practically all the large and important centres in Canada, many of them coming by wire. We have opened our own office in Vancouver in order to keep close to the trade and give our subscribers a better service. Our representatives are continually calling on merchants from one end of Canada to the other investigating their methods for conducting their businesses along aggressive lines. Plans in preparation include a still further development in editorial service in the future.

EDITORIAL COMMENT

PROTECTING THE WATER SUPPLY

RAW sewage is still being discharged into our various rivers, lakes and harbours, says a report in "Conservation."

In many cases; this pollution endangers neighboring water supplies as well as those situated at other points along the same waterway. For the protection of the public, the sewage should be treated before discharge. Many methods of sewage treatment are practical and efficient, the choice of a process depending largely upon local conditions and the nature of the wastes discharged.

A New England city of 160,000 population had a sewage problem that required solution. The main sewers discharged into harbor at five different points, and an exhaustive study made by the United States Public Health Service revealed the fact that the harbor was grossly polluted; that shellfish taken therefrom were unfit to be eaten, and that the bathing beaches were unsanitary and unsafe.

The digestive capacity of the harbor waters rendered the production of a nitrified effluent unnecessary; but a substantial removal of suspended solids and of sewage bacteria was required to avoid the sludging up of channels or pollution of bathing beaches and shellfish beds.

To determine the best methods of treatment, an experiment station was operated for 11 months—June, 1917, to April, 1918—at a cost slightly less than $18,000. The station was situated at the principal outfall, which discharges about one-half of the total city sewage; it is also the most important one to study, on account of its high content of industrial waste. Special studies were also made of certain processes on an outfall serving a residential district.

The processes studied were (1) fine screening; (2) Imhoff treatment; (3) activated-sludge treatment, and (4) Miles acid precipitation—all but the last followed by chlorine disinfection.

The experiments, covering about one year, lead to the conclusion that, for the particular and somewhat unusual local conditions there prevailing, the Miles acid process of sewage precipitation, with recovery of grease and fertilizer, was the best for one of the four plants necessary, and may prove advantageous for the other three.

While this process was suitable for the above requirement, it may not be the best in other places or under other conditions; the desirability of installing a treatment plant and of systematically determining the most advantageous process, however, is demonstrated.

ANY EFFICIENT ACCOUNTING SYSTEM COMPLIES WITH BANKRUPTCY ACT

AN enquiry has been received from an Alberta plumber as to what constitutes a "recognized accounting system" as prescribed in the Bankruptcy Act, and which every merchant is required to have subsequent to July 1, 1920.

It is pointed out in this connection, that there are no particular accounting systems which have been definitely authorized for use by merchants. The Government requires that each merchant maintain an accounting system which will show a clear and concise record of every business transaction and which can produce at short notice a correct statement of how the business stands. All receipts and disbursements must be shown.

This will not inflict any hardship on the trade, for no intricate accounting system is necessary, and the benefits of keeping a record at all times will accrue to all merchants. There are a number of simple accounting systems ready for use by dealers, and these will take care of all requirements of the law as well as give protection to the dealer himself with a minimum expenditure of time and energy. The Government merely wants to be shown that the dealer is acquainted with every detail of the progress or otherwise, of his business, so that in the case of failure his liabilities will not be an unnecessarily large burden, and be such as to render difficult a declaration of insolvency.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

OBITUARY

Hamilton, Ont.—J. E. Kennedy, plumber, is dead.

MOVING TO NEW STORE

Port Alberni, B. C.—C. E. Horton, plumber, is moving to new store premises this month.

MOVES PLUMBING SHOP

Ingersoll, Ont.—L. J. Holder, plumber, has moved his plumbing and tinsmith shop on King St. E., to new premises across the road.

PERSONAL

Mr. Gordon Hawley of the Engineers and Plumbers Supply Co., Ltd., of Regina, has returned home after spending four or five days in Winnipeg on business. He reports business very good in the vicinity of Regina.

ENTERS ELECTRICAL FIELD

MacKenzie Co., 55-6th St., New Westminster, B. C., put in a complete line of electrical appliances and equipment a short time ago and have found it a profitable addition. They are specializing in installing complete plants in country homes. One of the firm remarked to Sanitary Engineer that they were doing as much of this work as they were of plumbing.

NEWMARKET PURCHASES TWO CANADIAN PUMPS

Newmarket.—Two pumps, costing about $12,000, have been purchased from Canadian firms by this town to improve the waterworks system. One is gasoline driven and the other is an electric machine. In this way it is expected that at least one pump can be kept in commission at all times. The town plans to raise $20,000 on debentures for general improvements to the waterworks.

A SCHOOL TO TRAIN OFFICERS OF HEALTH

London, Ont.—The London Institute of Public Health is arranging to establish in connection with the Western University, a Training College for medical officers of health, water chemists and bacteriologists, and also public health and welfare workers. There is only one institution of this character in America, the Johns Hopkins of Baltimore, Md. Dr. Hill believes that London can be made a centre for such students from all parts of America.

NEW PREMISES FOR W. H. CUNNINGHAM & CO.

W. H. Cunningham & Co. have purchased No. 269 and 271 Richmond St. West, Toronto, and expect to take possession about August 15. Supplies of such items as floor and ceiling plates, wood wheel and automatic air vats, cone top and bulbs, stamped brass flanges, National adjustable pipe hangers, English blow torches, bending springs, etc., will be stocked, also a number of items manufactured by The United Brass Foundries and Engineers, Limited. Manchester, England, such as pressure gauges, semi-rotary (or wing) pumps, etc.

JENKINS BROS., LTD., EXTEND PLANT

Montreal.—A new machine shop for the Iron Valve Division of Jenkins Brothers, Limited, Montreal, has recently been completed. This covers a considerable area and will afford 16,000 sq. ft. of additional floor space.

The management informs Hardware & Metal that the new facilities will afford the company enlarged facilities for the execution of orders. The company established in Canada in 1906, and is a branch of the parent industry operating in the United States.

JENKINS BROS., LTD., STAFF ENTERTAINS

Some 400 employees and invited guests made merry on the occasion of the recent opening of the new Iron Valve Plant, at Montreal, of Jenkins Bros., Limited. An entertainment was arranged and carried out in the new building, selected decorations adorning the walls.

An announcement was made by the managing director of the company, W. S. Trimble, regarding the inauguration of a group insurance system for the benefit of employees, and also a pension plan, which was most warmly applauded by the employees. Dancing and card playing were indulged in for the greater part of the evening, the Grenadier Guards band being in attendance.

DUNDAS SEWAGE PLANT IS NEARLY READY

Dundas.—The final work necessary towards the completion of the disposal plant has been begun and, there is nothing to interfere with the operation of the town's new service. Contractor Fry has been complimented most highly on the thorough manner in which each detail of the structure has been served.

Started at about the same time as the new sewers last fall, the plant was longer completing than was at first estimated, owing to labor shortage and other causes. Private services have yet to be constructed before the plant can be made to serve its purpose.

CLAIMS HE CAN HEAT HOUSE FOR $9 A MONTH

Winnipeg.—Professor J. W. Dorsey's scheme for electrically heating houses, by which, he claims, expenses could be cut down to $9 a month, is to be considered by J. G. Glassgo, manager of the City Light and Power Department and the Cambridge city electrician. Use of the invention by Professor Dorsey was offered the city.

In a few days Prof. Dorsey will leave for Washington, where he has been called to consult with the United States Bureau of Standards about the application of the new principles he has discovered.

Prof. Dorsey states that sufficient power could be developed from the Winnipeg River to heat the people of Winnipeg in the most extreme winter. New developments in the transmission of electricity would reduce by one-half the cost of transmission, he said.

PLUMBERS' STRIKE NOT LOOKED FOR

A special meeting of the Master Plumbers' Association of Montreal was held last week to discuss arrangements for any possible strike that might occur. D. A. Bethune and H. Lavigueur presided at the meeting which was largely attended.

A committee had been specially appointed to deal with a possible strike, and reported that a strike was generally considered very improbable. They recommended however, that the association be prepared for anything that might occur. It was stated that the efforts of Local 144 to make contracts with individual firms had met with little success. One member suggested that the Master Plumbers collectively close down for a couple of months, which was favorably received.

The general opinion was expressed that in view of the number of men out of work, a strike was most unlikely.

In this respect, the secretary of Local 144 stated yesterday that the meeting which the United Association's representatives had with the master plumbers gave reason to hope that a satisfactory settlement would be arrived at apart from the Masters' Association.

Extra Work For Peterborough's New Plumbing Inspector

Peterboro.—The City Council has passed a by-law appointing Arthur G. Metheral plumbing inspector at a salary of $1,500 a year. His duties, however, are increased from those of his predecessor, the new official being under the jurisdiction of the local Board of Health and the Medical Health Officer.

In this connection Medical Officer Dr. McPherson pointed out that Metheral could be associated with sanitary plumbing in houses, sewage disposal from all premises; have authority in regard to ventilation in homes, schools, factories; study up and advise in general conditions to make premises habitable, and give attention to sanitary measures in bake, butcher, fruit and other shops. In fact, said the doctor, such sanitary work is not too important for the best man to be had.

He suggested that Metheral's official rank be chief sanitary inspector.

Ald. Gordon did not think Metheral should rank above Mr. Stapleton. "If there is any promotion going, seniority should be given the preference," he said.

Dr. McPherson—"The senior is not always the best man."

Ald. Hamilton.—"There need be no question of seniority at all; both Stapleton and Metheral can work under the direction of the M. O. H. and the Board of Health."

Ald. Whitehouse concurred in this view, and the matter rested at that.

Before passing the by-law Ald. Gainey said he was not sure Metheral would agree to the new duties added since he applied for the position.

Ald. Gordon replied that there would not be enough work to keep him employed as plumbing inspector and he could not conceive of his objecting to the added duties mentioned by Dr. McPherson.

Ald. Crowe—"Mr. Metheral told me he is quite willing to shoulder enough duties to keep him employed the whole time."

MORE CHLORINE IN WATER

Peterboro.—Ten pounds of chlorine to one million gallons of water is the formula being used by the city in an effort to counteract the contamination that is present in the city water due to the increase in cottages in the Kawartha Lake District and the operations of the lumbermen who are busy driving the season's cut down the Otonabee River.

TRADE INQUIRIES

1339. Baths and sanitary ware.—**Representation.**—Agent in Cape Town is prepared to take up Canadian representation of baths and sanitary ware of all kinds.

1340. **Bathroom fixtures—Representation.**—A Cape Town commission agent is prepared to take up an agency for bathroom fixtures.

PRESIDENT W. H. CUNNINGHAM

VICE-PRESIDENT W. F. HILL

Officials of W. H. Cunningham and Company, Church St., Toronto, who have found that their present quarters are now too small for their expanding business and who have therefore purchased property and the building at 269-271 Richmond St. W., Toronto. The new premises are expected to be occupied on or about Aug. 15. The company will therefore be given larger quarters for the anticipated development of the future.

GETTING A BIT RESTLESS

New Form of Plumbing "Cost Plus" Contract

New Form Authorized by T.E.B. Provides for Declines in the Market—Compensation and Liability Insurance Taken Out of Overhead—A Uniform Printed Contract for Every Customer.

A FORM of "Cost-plus" contract has been drawn up by the National Trade Extension Bureau. The form specifically states that "the undersigned, agrees to furnish all of the above-described material and labor at actual cost of such material and labor to the undersigned, plus freight, drayage, trucking and ——per cent. overhead, and in addition there shall be added to the aggregate cost of all of the above items——per cent. profit." Declines in the market are provided for as well as the method of payments which are to be made monthly on a basis of 95% of the total value of labor and materials furnished during the 30 days preceding, plus the overhead and profit percentage. The remaining 5% is to be paid on the completion of the contract.

This form, it is pointed out, will enable the contractor to present to his customer a "uniform printed contract" which the customer will take as the contract most generally used for work of this character. Under the conditions stated in the contract, compensation and liability insurance has been taken out of the overhead and is chargeable in the same manner as material and labor. It has been found that in many instances insurance is included in the overhead for the year. This practice, states the bureau, will prove satisfactory under normal conditions, if the contractor does about the same amount of work each year and employs the same number of workmen at the same wage. At this time, however, when wages have nearly doubled, compensation insurance has also increased in like proportion, because the rate has not been reduced, while the wages have advanced. This practice is characterized as profiteering of the boldest type, for these insurance companies do not pay the men any more per week for disability than they did previous to the war. However, while this condition exists, the bureau recommends that this insurance be extracted from the overhead and applied to the cost of labor per hour. In other words, if labor costs $44.00 per week, and the rate charged by the insurance company amounts to $2.00 per $100.00, the cost of labor should be $8.16 per day which includes this insurance.

If the overhead is based on the premium paid last year, when labor cost $6.00 per day, the percentage of overhead will not be sufficient to meet the increased premium based on a rate of wage aggregating $8.00 per day. The form is reproduced herewith.

SEWAGE DISPOSAL

(Continued from page 17)

respective centres and wired at all intersections and the balance of the concrete is then laid to bring the roof up to the required thickness (from 4 to 6 inches) and the concrete surface is then struck off level and smooth by a straight piece of board.

The tank should be left for at least ten to fourteen days, then, if the concrete is sufficiently set, the formwork can be stripped and all rough surfaces patched up if required and a thorough inspection made of the inlet and outlet and ventilation pipes.

Particular attention should be given to the cast iron closed manhole covers, which should fit tightly. The forms, when in position, should be well soaked in clean water so as to prevent the concrete adhering to the lumber, as this ruins the surface when the formwork is removed.

The automatic syphon, which is an essential part of a septic tank, should be carefully installed. They are manufactured in sizes and depth and kept in stock from 3 inches to 8 inches in diameter.

Toronto Plumbers Hold Annual Picnic

Toronto Society of D. S. & H. E. Hold Annual Picnic to Kew Gardens—Supply Men Beat Plumbers in Ball Game—Good Representation of Supply Houses and Manufacturers—Another Step Forward in Trade Extension Movement.

THE annual picnic of the Toronto Society of Domestic Sanitary and Heating Engineers was held to Kew Gardens on Thursday, July 22nd, and a splendid representation of manufacturers, supply houses and master plumbers was on hand. The arrangements as carried out by the committee of which Percy C. Mansell was secretary and Harry A. Farthing, chairman, were complete in every respect and an enjoyable outing resulted.

The proceedings commenced shortly after dinner, a full card of races and games being conducted. The fat man's race provided an exciting finish, Garrett Frankland, secretary of the Society, winning by a scant margin. It is said his large build was largely responsible for enabling him to touch the winning line first.

Two ball games were held, the most exciting of which was a game between the supply men and the plumbers. The former won the contest by a score 16-7. At the conclusion of the afternoon session of sports a supper was served. Representatives of practically all the local supply houses and manufacturers were present to renew acquaintances with the plumbers and it was felt that the occasion marked another step forward in the general plan of trade extension and improvements now under way.

UNIFORM CONTRACT FORM

For "Cost Plus" Plumbing and Heating Contracts

Proposal No. .... 19....

M.....

Address .....

The undersigned propose to furnish all the labor and materials to do the .....

.....

.....

for M....., as per the plans and specifications

prepared by ..... Architect

for the following considerations and under the conditions hereinafter outlined:

The undersigned agree to furnish all of the above described material and labor at the actual cost of such material and labor to the undersigned; plus freight drayage and trucking; which aggregate amounts shall represent ..... per cent. of the selling price to you to which shall be added ..... per cent. for overhead and ..... per cent. for profit of the total selling price to you which is represented by 100 per cent.

Payments to be made monthly on a basis of 95 per cent. of the total value of labor and materials furnished during the thirty days preceding; plus the per cent. overhead and profit stated above. The remaining 5 per cent. to be paid on the completion of this contract. It is expressly stipulated and agreed that the undersigned shall not be liable for any delays occasioned by the acts of elements, strikes, fire, inclemency of the weather, the acts of other contractors, or any other causes beyond the control of the undersigned.

SUBJECT TO THE FOLLOWING CONDITIONS

Connections to private sewers or water mains will only be made after permission to make the same has been secured by you.

Fire compensation and liability insurance will be carried by the undersigned and charged in the same manner as material and labor.

The undersigned shall not be required to replace material stolen from job after same has been inspected.

THIS PROPOSAL IS IN DUPLICATE AND A LIST OF FIXTURES AND APPLIANCES ARE ON THE REVERSE SIDE.

It is hereby expressly provided that the title to the above described materials to be so furnished by the undersigned shall be and remain in the undersigned until all sums of money called for in this proposal and required to be paid by you are fully paid the undersigned in legal tender of the United States; and that, until said sums of money are so paid, said materials shall be and by your acceptance hereof you agree that they shall be and remain personal and movable property, in whatever manner they may be annexed to realty; and that, in case of default in the payment of any of the instalments above provided for, the undersigned is hereby authorized to enter upon said premises and take possession of and remove said materials at any time; and that, in such event, the undersigned shall have the right to retain as rental for the use of said materials any sum or sums of money that may have been paid by you; and that all expenses incurred by the undersigned by litigation arising out of, and caused by failure to make the payments as herein provided for, shall be paid by you.

REMARKS .....

.....

.....

.....

Respectfully submitted,

.....

Per.....

ACCEPTANCE:

The foregoing proposal is hereby accepted as a contract, this ..... day of .....19.....

Signed .....

Copyrighted 1920, the National Trade Extension Bureau.

DESPITE readjustment in building conditions there is a great deal of building which will of necessity go on regardless of cost of materials or labor. There's a great shortage of houses in Canada. Canada must house her people this winter.

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

—and as long as building goes on and old buildings are being made liveable there is sure to be a demand for plumbing. These conditions exist right now and will exist for several years to come. Plumbers to-day are doing record business.

Are you getting your share?

fg. Company, Limited

Halifax Office:
McCURDY BUILDING, HOLLIS ST.

Head Office:
ROYAL BANK BUILDING, TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

Drafting for the Sanitary Engineer

THIRD ARTICLE OF A SERIES BY ANDREW LOUCKS.—(Continued from last Issue).

Dining Room

The dining room is the same width as the living room, and is in depth something less than its own width.

On the inside partition of the dining room there is a china closet. This closet is between a door leading to the hall and a door to the pantry.

The door leading to the verandah is set close to the living room partition. A little to one side of this door there is a window which should also be marked on the sketch.

In the rear wall there is a large window, built something in the form of a "bay." The proportion of this window should be roughly indicated on the sketch.

Pantry

We note that the pantry partitions are formed by a continuation of the lines of the hall partitions, and also of the walls of the kitchen vestibule. We also note that the exterior walls of the pantry is not so thick as the exterior walls elsewhere, and when we investigate we find that the wall here is built of frame instead of stone. This change in construction was made, no doubt, to gain something in the width of the pantry.

We should indicate the fixtures, such as the sink, the table, and the cupboard; otherwise we may find that when we come to make the heating plans we shall be at a loss to know what space is available for the setting of a radiator in this room.

Kitchen

The dimensions of the kitchen are struck by the same methods that we have used in fixing the proportions of other rooms.

We note that there is one window in the kitchen, and two doors.

There is a projection where the clothes chute is located, and there is a chimney breast right beside the rear entrance. All of these things should be noted and marked on the sketch.

Library

The library is almost square in plan. The walls of this room are already fixed and all that remains is to locate the remaining partition. This partition is set almost at the library door.

To make a plan of the parlor, the bounding lines of the outside of the house should be continued until they intersect.

The parlor door has already been indicated on the hall plan. The only detail that remains to be shown is that of the window.

The Free-hand Sketch

So far we have used neither the rule nor the tape in making measurements. We have trusted to our yes alone, and if we have been careful to keep to some standard of proportion we shall find that our free-hand drawings will be close to the proportions of the various measurements which we are to take later.

A Time Saver

At first it may seem to take a great deal of time when making a general survey and sketch before taking any measurements, and it is at this time when the temptation to take the seemingly easire course of making direct measurements is the strongest. But if the beginner will only persist in using his eyes until they are properly trained, he will find that he has gained a faculty of ever-increasing value.

When a method of sizing up the building, like that here described, is faithfully followed, the result will not at first be fully appreciated. It is only later, when the speed and exactness of the training becomes evident, that the person following this method can prove that he is doing his work in considerably less than one-third of the time ordinarily taken in measuring a building.

Measurements

After the free-hand sketch of the floor plan is made we start with the measurements.

About the most accurate way to take measurments—and the way that will prove of the greatest value when we start on the working drawings—is to mark the distance from certain fixed points. As an example we will consider that we are taking certain dimensions at the partition between the hall and the living room.

In the usual way thes measurements would be made so that the reading of the tape would show a distance of five feet from the exterior wall to the other end of the cased opening; then a measurement of ten feet across the opening, and then a dimension of five feet from the opening to the partition.

Now, instead of indicating those dimensions in the usual way, we will take the first measurement and mark it as five feet, then, without lifting the end of the tape from the starting point, we go on and measure the distance to the farther side of the opening and mark fifteen feet on our sketch. The distance clear from one end of the partition to the other is twenty feet.

When measurements are made in this way the fixed end of the tape need not be moved until all of the measurements on one side of the room have been taken.

Bear in mind that the measurements taken in this way apply only to the sketch and while we have shown on the accompanying working drawings an example of this system of dimensioning we do not wish the reader to understand that this is the correct way to show dimensions on a working drawing.

What to Omit

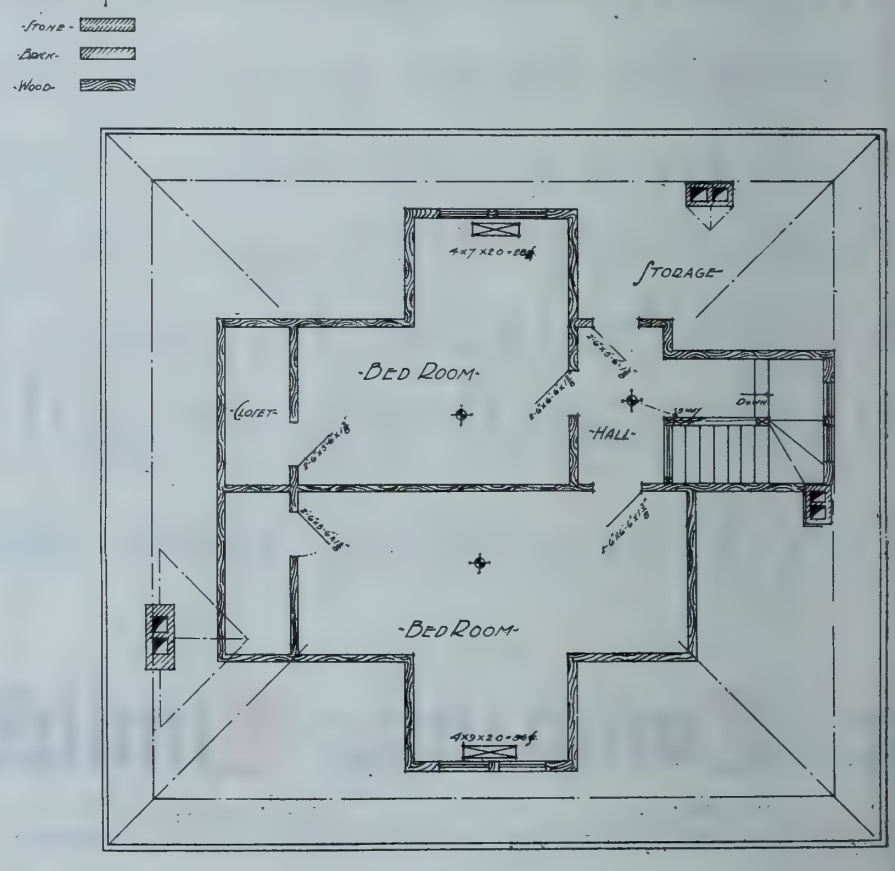
The drawings accompanying this article are part of the architectural drawings used in the building of the house, and show much more detail than the heating engineer will require on his plans.

If the draftsman could always secure the architect's drawings it would not be necessary to make a sketch of the actual building; but when such drawings can not be obtained it is necessary for the draftsman to take just such information from the actual building as he would take from the architect's drawings.

When making heating plans from the architect's drawings, the information that is required can be secured just as the necessity occurs; but when making heating plans from sketches such information as may be required must be embodied in the sketches long before the need for the information becomes apparent. Therefore, it is far better to put too much information on the sketches than not enough.

The heading of this part of the article is: "What to Omit," and here we may say that it is rather difficult to say just what may be omitted.

The lines showing the verandah may be



-ATTIC-FLOOR-PLAN-
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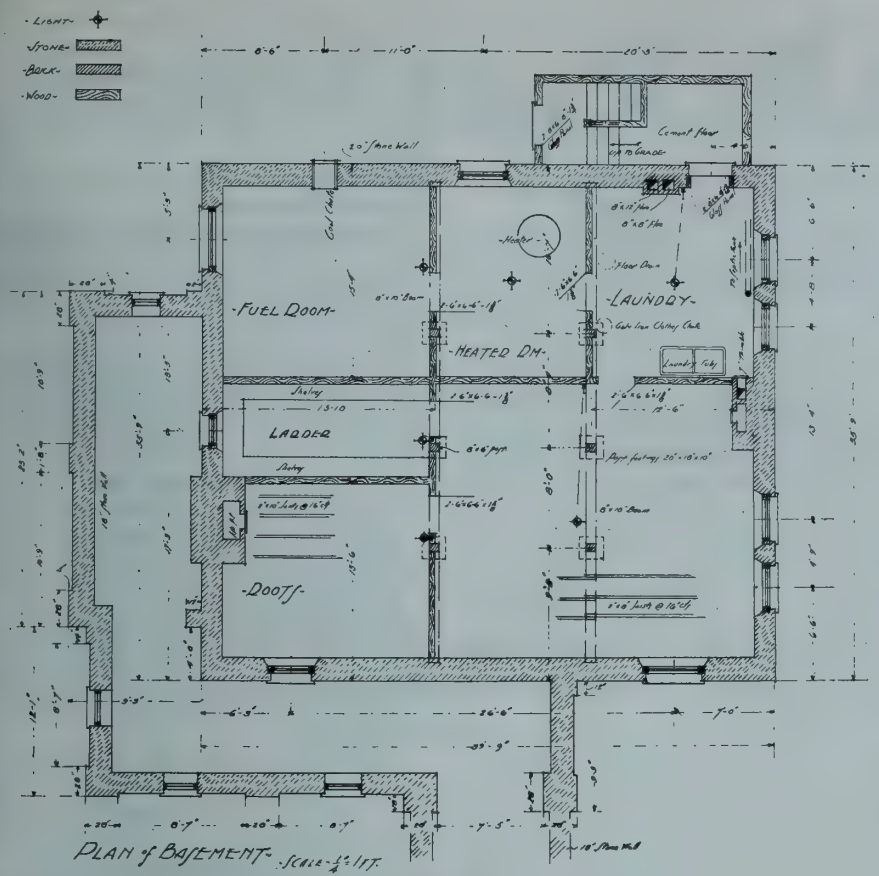


well left off, as they have no bearing on the layout of the heating plant.

The swing of the doors must be, in some cases, indicated, because otherwise it might appear that a radiator could be conveniently set in an impossible position.

If the draftsman gets into the habit of locating the position of the radiators while he is making the sketch, he will soon find what details he can safely leave off his drawings.

Making Notes

Before measuring a building, it is advisable to make a few notes of what one is likely to forget, and then to refer to those notes before returning from the building to the drafting board. Remember that although the heating plan is not to show anything more than the information required for the steam-fitter, the sketches made for the draftsman must show a good deal of the structural detail of the building.

Structural Details

When examining the basement, the draftsman should note how the joists rest on the beams.

In some buildings the bottoms of the joists rest on the top of the beam; but in many buildings the joists are framed into the beam. In cases like the first instance there will be a space above the beam where the heating pipes may run between the joists; in the second case this passage is blocked by the beam.

If the draftsman neglects to note a detail of this kind there is a chance that he will so locate his pipes that the low head room will be somewhat annoying to anyone but a very short man.

Flue

Don't forget to measure the flue.

A mirror should be used so that the draftsman may assure himself regarding the inside conditions of the chimney.

See if the flue stands clear of surrounding buildings, and if it is not serving as a chimney for several connections.

Windows

Do not forget to measure the area of the window and door openings.

Measure the whole window opening, from reveal to reveal, not bothering with the exact area of the glass. The muntins, sash and mullions lose by leakage what heat would be lost by an equivalent area of glass.

Do not forget to measure the height of the window stools from the floor. If you forget to do this you may find that when the radiators are delivered to the job that they will project in the way of the windows.

Storey Heights

Here is one thing that one might consider as never forgotten; yet many sketches devoid of this very necessary information are delivered daily to drafting rooms.

In most residences the storey heights can be obtained by the six-foot extension-rule. Where the ceilings are very high it will be necessary to measure the storey heights at the stair-wells.

The Walls

Be sure to indicate the materials and the thickness of all walls. The construction of the walls has an effect on the quantity of radiation required.

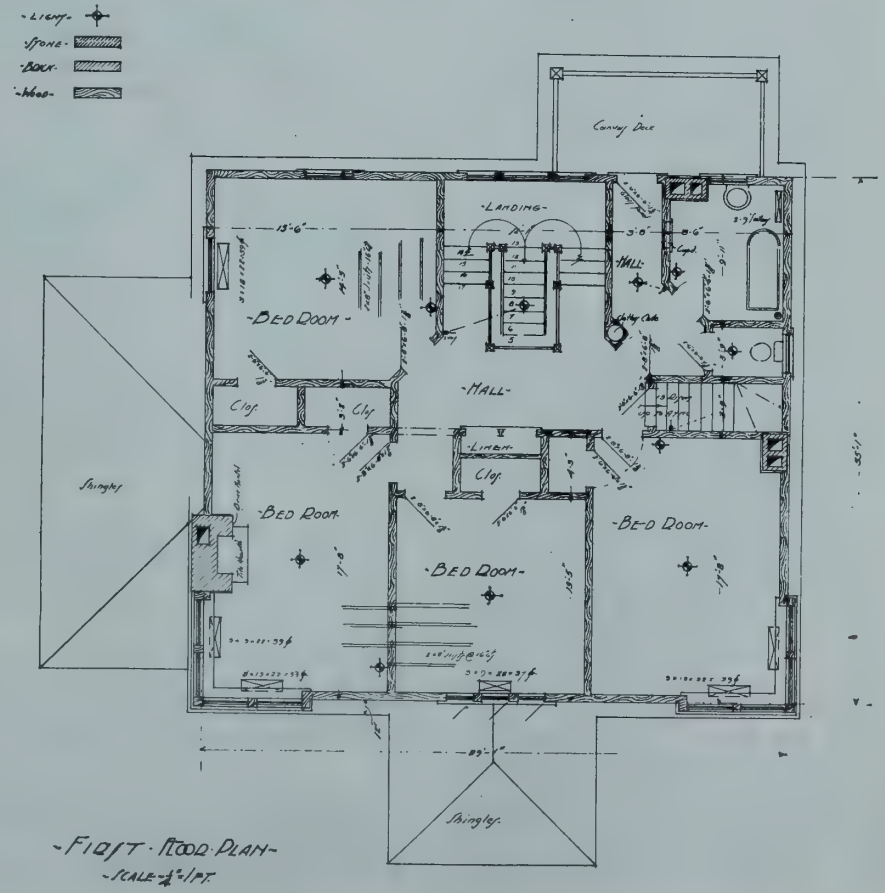
A Summary

The method of making the sketch has been illustrated in this article by a greater reference to the ground floor plan than to any of the others. This was done as an illustration of how all of the floors should be measured.

What we wish the reader to understand is that the only way to make sketches of the floor plans of any building is to go to the building with a clear and definite programme that is to be followed. Also that he is to have a pretty clear mental conception of the entire building before he starts to make a sketch, and that he should make his sketch before he makes a single measurement.

PATENTS ELECTRIC HEATER

James Taylor, Toronto, has been granted a patent on an electric heater which, it is claimed, will heat 30 gallons of water to a temperature of 180 degrees Fahr. in 55 minutes at a cost of two cents, and raise 30 pounds of steam in one hour and a quarter at a cost of six cents. Extensive tests have proved that the heater can be used to heat a house by steam or hot water.



More Co-operation Between Town and Country is Needed

Renfrew Mercury Believes that the Farmers' Co-operative Store with Its Proposed Fifty Million Dollar Turnover Jeopardizes the Livelihood of the Retail Merchants in the Smaller Towns.

(From the Renfrew Mercury)

THE important event of the week in South Renfrew was the visit of Mr. J. J. Morrison, the secretary of the United Farmers of Ontario. Mr. Morrison is a man of pleasant personality, a nice man to meet, and a thorough democrat. The "Mercury" has devoted a great deal of space to the U. F. O. picnics and particularly to Mr. Morrison, as we believe a great many of our readers are deeply interested in what he had to say.

Much that Mr. Morrison said was admirable, and the "Mercury" is in substantial agreement with a great many of his proposals and arguments looking towards a more democratic method of parliamentary representation. At the same time we feel that throughout the greater portion of his addresses Mr. Morrison made the mistake of assuming that every man's hand was against the farmer, and that therefore the farmer's hand should be against every man.

This is certainly not the case. As a matter of fact the working people of the towns and cities are feeling the pinch of conditions fully as much, if not more than the farmers to-day, and, while they may not feel like subscribing fully to the Farmers' platform, they are willing to go a good part of the way with any organization that will curtail the privileges of the big interests and make living conditions easier for them. But Mr. Morrison decries a People's Party, yet Hon. Mr. Drury, Hon. Mr. Smith, and other members of the Cabinet have openly advocated it.

We feel that in some instances if Mr. Morrison's arguments were followed out to their logical conclusion it would not be for the best interests of the country at large. Mr. Morrison deplores the depopulation of rural Ontario, and yet he must realize that hundreds of young men and women are drawn to Toronto every year by the large mail-order houses with their immense factories and warehouses employing thousands. Rather than discouraging this, is not the Farmers' Co-operative store, with its proposed fifty million dollar turnover, encouraging it at the expense of the smaller towns and villages? Is not the business of the province becoming centralized in Toronto? We are not pressing this point simply for the sake of argument, but because we feel that what is wanted is greater co-operation between the town and the country, and not a desire on the part of one to succeed at the expense of the other. In urging the farmers to send their money away to Toronto, Mr. Morrison is seriously interfering with the business and jeopardizing the livelihood of the retail merchants in the small towns that are a necessity and convenience to the farming community. If this movement to build up the city of Toronto is encouraged, eventually, although perhaps not immediately, towns like Renfrew will dwindle to mere villages or cross-roads, a condition which we feel no farmer is anxious to see brought about.

It is not desirable at this time to enter into a lengthy discussion of Mr. Morrison's addresses. At the same time we could not help feeling that they were very largely a class appeal, and not as broad as we had hoped they would be. We all realize that agriculture is the basic industry of the country and every man is glad to see it prosper, yet is any lasting good going to come to the country by setting up rural against urban communities, and sowing seeds of distrust of one another among the people? It is a mistake to take too seriously the jokes and jibes of the writers in the city press about the hayseeds and other things. They are often said in jest and carry no weight with the vast majority who know and appreciate the sterling worth of the tillers of the soil of this Dominion.

Mr. Morrison is an earnest, sincere speaker, a genuine good fellow, and as we said before, we are in substantial agreement with a great deal that he said, but we feel that what is wanted in this country is not a class movement of any kind, but a peaceful revolution of a united common people that will wrest from the privileged interests some of the unfair advantages which they enjoy, and give to us all a fair and square deal, and equal opportunities in this land that is full of promise and which we all love so well.

CENTRAL STATION HEATING

(Continued from Page 16.)

must be made to care for such as may occur.

The expansion of the street mains is taken up by a U placed about every 550 feet in the run of the pipe. Ninety degree bends are placed at corners.

The Station

Now we are back at the station where the water is heated, and here we find the boilers, pumps, re-heaters, etc.

We find that the boilers are also used for the supplying of steam to the engines, etc. If the plant is very large we are almost sure to notice that the boilers are of the water-tube type. If the plant is small, ordinary tubular boilers are used.

The boilers may be fired by hand or by automatic stokers.

The exhaust steam is used to heat the water. We find that the water of the heating system does not circulate through the boilers; but that it is heated in a re-heater, or generator.

The generators may be several in number; some of them standing as storage tanks where heat may be stored when the demand for heating service is not very great.

Hot water generators are usually large cylindrical tanks, filled with copper or brass tubes through which the steam passes while warming the water within the tank, and surrounding these tubes.

The steam supply is taken from the exhaust pipe of the engine. A by-pass is aranged so that when the exhaust steam from the engines is not sufficient in quantity, live steam can be fed directly from the boilers.

The exhaust pipe must be fitted with a grease separator, so as to remove the oil from the steam before it is turned into the heater.

The central station equipment must be installed so that in case of the necessity for repairs to any part of the plant it will not effect, in any way, the operation of the balance of the system. It is for this reason that arrangements for such "cross-overs" as by-pass connections, duplicate tanks, re-heaters, and boilers should be provided for.

The temperature at which the water is to be kept, and the velocity of the water travelling through the mains must be controlled to suit varied weather conditions. All of these things must be kept in mind while the engineer is designing the central station system.

Automatic Temperature Control

When each house connected to a central station system has its temperature automatically controlled, the saving in fuel cost may be as much as 40 per cent. over that when the control of the house temperatures is left to the care of the tenants of those buildings.

The apparatus used for automatically controlling the house temperatures consists of: a thermostat, placed somewhere in the central part of the house; a diaphragm valve, placed in the main return of the house-piping; and a system of compressed-air lines connecting the thermostat and the air valve.

The air used in actuating the dia-electric, or steam-driven compressor, is situated in the boiler room.

The compressed air is conveyed along the street in a galvanized iron pipe. This pipe is generally proportoned so that a 1-in. line will carry, at least 260 thermostatic valves. A mile and three-quarters is not too far to run a line of this size.

(Continued on page 32.)

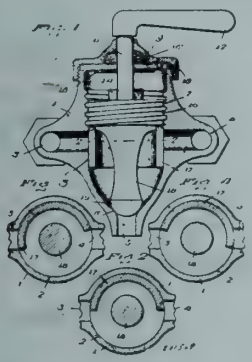
NEW CANADIAN PATENTS

(Issued for Plumbing and Heating Goods)

NO. 201,569. COMBINATION FAUCET.

Jacob T. Johnson, Atlanta, Georgia, U.S.A.

A valve comprising a casing having a chamber with a smooth cylindrical wall, a pair of inlet passages leading to said chamber, and a discharge outlet at one end of said chamber, said wall having screw threads at that side of said inlet passages opposite to the discharge outlet and spaced from said inlet passages, and a valve member screw threaded portion of the wall, and having an arcuate portion extended therefrom



and snugly fitting said smooth cylindrical wall and adapted to move across said passages, said valve member having a finger extending therefrom to seat over said outlet.

A valve comprising a casing having a chamber with a smooth cylindrical wall, a pair of inlet passages leading to said chamber, and a discharge outlet leading from the lower end of said chamber, the wall of the chamber converging to said outlet, said wall having screw threads at a point spaced above said inlet passages, and a valve member screw threaded within said threaded portion of the wall above said inlet passages and having a depending arcuate portion snugly fitting said smooth cylindrical wall and adapted to move across said passages, said valve member having a depending finger to seat over said outlet within the converging portion of said wall of the chamber.

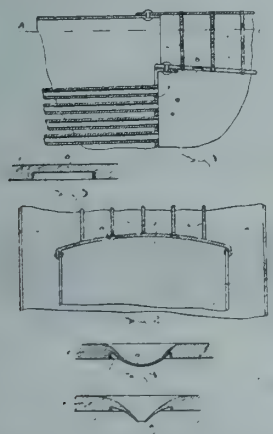
* * *

NO. 201,581. BOILER.

Thomas William Lowe, Winnipeg, Manitoba, Canada.

In a boiler, a crown sheet having countersinks formed therein on the firebox side and located between the first and second rows of crown sheet stay bolts.

A means for guarding against danger from low water in



boilers which consists in decreasing the thickness of a part of the boiler which is exposed to the direct heat of the products of combustion on the one side and is in contact with the water in the boiler on the other and locating the part decreased such that it appears below the normal working water line of the boiler.

The method of guarding against danger from low water in boilers which consists in decreasing the thickness of a part of the boiler in a location below the normal working water line so that it will give way at the thin part under excessive temperature and blow out under pressure prior to the surrounding part of the boiler being affected by such excessive temperature.

* * *

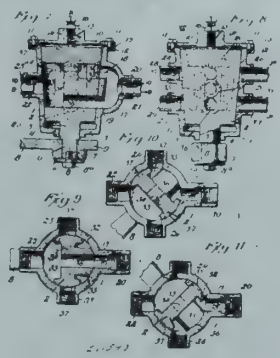
NO. 201,543. SIX-WAY VALVE.

Robert M. Downie, Beaver Falls, Pennsylvania, Pa., U.S.A.

A six-way valve comprising a casing with oppositely located pairs of ports and other oppositely located single ports, and a valve plug for the casing having oppositely located cavities for bridging certain of the single and pairs of ports in the casing and a passage opening into one of the cavities for connecting the single ports.

A multi-way valve comprising a casing with oppositely located pairs of ports and other oppositely located single ports, and a valve plug for the casing having oppositely located cavities of an extent lengthwise and circumferentially of the valve plug so as to each connect a pair of ports and a single port and having blank spaces between the cavities to cover or close the pairs of ports.

A multi-way valve comprising a casing with oppositely located pairs of ports, other oppositely located single ports



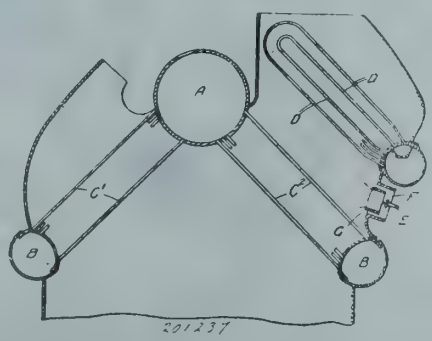
with one of the single ports divided and entering the interior of the casing at separated points, and a valve plug adapted to the casing and provided with cavities on opposite sides of an intermediate division wall or partition common to the cavities, and said cavities each being of a length and circumferential extent to connect a pair of ports with one of the single ports, and one of the cavities having an enlargement therein constituting a continuation of the division wall, said enlargement being of less width than the cavity containing it, there being a passage through both the enlargement and the division wall adapted to connect the cavity other than the one containing the enlargement with one branch of the division of one of the single ports.

* * *

NO. 201,237. SUPERHEATER OF WATER TUBE BOILERS.

Harold Edgar Yarrow, Scotstown, Near Glasgow, Scotland.

In water tube boilers, more particularly of the Yarrow type, in which superheaters are disposed on the side of the generat-



ing tubes furthest from the source of heat, the provision of oil burners in the space between the generating and superheating tubes.

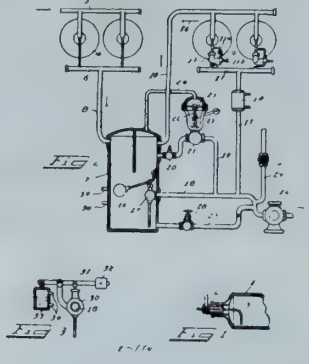
Water tube boilers according to claim 1 in which the oil burners are inclined towards the generating tubes.

NO. 201,556. DRIER HEATING SYSTEM.

William Bruce Fulton, Middletown, Ohio, U.S.A.

In a drier heating system, a receiver, a pipe communicating with the upper portion thereof and adapted to lead steam from the secondary driers of the system, a pipe from the upper portion of the receiver adapted to convey steam to the primary driers of the system, a suction device, a pipe adapted to convey matters from the primary driers to the suction device, a pipe connecting the suction device with the lower portion of the receiver, a valve in the last-mentioned pipe between the receiver and the suction device, and automatic means for controlling said valve by changes of level of water in the receiver combined substantially as set forth.

In a drier heating system, a receiver, a pipe communicating with the upper portion thereof and adapted to lead steam from the secondary driers of the system, a pipe from the upper portion of the receiver adapted to convey steam to the primary driers of the system, a suction device, a pipe adapted to convey matters from the primary driers to the suction device, a pipe connecting the suction device with the lower portion of the receiver, a valve in the last-mentioned pipe between the receiver and the suction device, automatic means for controlling said valve by changes of level of water in the receiver, and a valved bypass pipe around said automatic valve and connecting the suction device with the receiver, combined substantially as set forth.



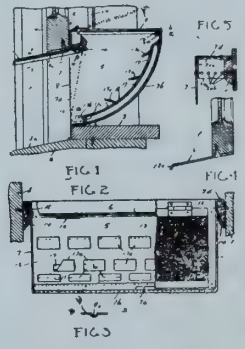
In a drier heating system, a receiver, a pipe communicating with the upper portion thereof and adapted to lead steam from the secondary driers of the system, a pipe from the upper portion of the receiver adapted to convey matters to the primary driers of the system, a suction device, a pipe adapted to convey matters from the primary driers to the suction device, a pipe connecting the suction device with the lower portion of the receiver, a valve in the last mentioned pipe between the receiver and the suction device, automatic means for controlling said valve by changes of level of water in the receiver, and restriction devices in the pipes placing the primary driers in communication with the suction device and adapted to limit the flow through said pipes, combined substantially as set forth.

* * *

NO. 201,586. VENTILATOR.

Orville C. Mann, Oak Park, Illinois, U.S.A.

In combination with a window casing and a vertically sliding sash therein, a box approximating in length the width of the sash opening in the casing, having openings extending longitudinally in one vertical side and in the top, said box having a removable partition extending longitudinally and inclined upwardly from the lower side of the opening in the lower side of the box toward the inner side of the opening in the top of the box, and having apertures each provided with a lip extending inwardly from its upper margin.



In combination with a window casing, a ventilator box for mounting at the sash opening having openings extending longitudinally in one vertical side and in the top, having a third longitudinal side extending obliquely with respect to the top and outer side and a removable false back or partition extending longitudinally of the box and provided with marginal flanges by which it is lodged upon and spaced inwardly from said inclined back of the box, said false back or partition having apertures, each provided at its upper margin with an inwardly extending lip whereby there is formed a dust-receiving pocket into which the dust from the incoming air current is deflected.

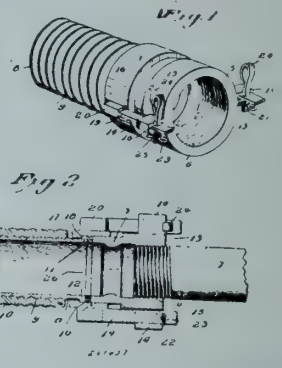
In combination with a window casing, a ventilator box for mounting at the sash opening, having a longitudinally extending opening in the outer vertical side, the box comprising a longitudinal corner member at the junction of the side and top, a closure for said opening in the vertical side hinged to said member at the lower inner corner of said member, and adapted to swing upward and outward through said opening and be stopped against the under side of said corner member at a position extending outwardly and downwardly.

* * *

NO. 201,637. PIPE COUPLING.

John Williams, Clinton, Iowa, U.S.A.

In a pipe coupling of the class specified, two coupling members having contiguous edges, the one member carrying a pair of diametrically opposed arms, and the other member having a pair of sockets through which the arms are inserted, and spring wedges inserted through the arms to hold the latter in the sockets.



In a coupling of the class specified, two coupling members having contiguous coupling edges, the one member having arms projecting therefrom and the other member provided with sockets through which the said arms movably extend, and resilient wedges, means adjustably engaging the arms and separately holding said arms in connection with the sockets.

A coupling comprising two members with contiguous coupling edges, the one member having oppositely disposed sockets, a collar movably mounted on the remaining member to extend over the joint between the two arms and having projecting arms movably engaging the said sockets, a gasket between the contiguous ends of the said members, and spring wedges removably and adjustably inserted sockets.

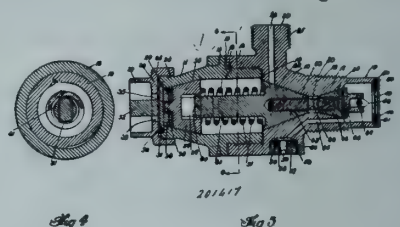
* * *

NO. 201,417. HIGH PRESSURE VALVE

Henry Alfred Wood, Kingston, Ontario.

A valve structure of the class described, comprising a sectional casing having open ends and having a laterally projecting nozzle between the ends, valve seats formed in said casing one adjacent each open end and a middle one adjacent said nozzle, valves co-operating with said seats and connections between said valves whereby upon the turning of one valve the remaining two will be automatically actuated in succession.

The improved valve structure consisting of casing sections threadably united end upon end in plan, and having therein three valve seats arranged in plan and three valves co-operating with the seats, one of said valves representing a controlling valve, and means representing connections between the valves by which to seat and unseat two of the valves in succession accordingly as the controlling valve is turned.



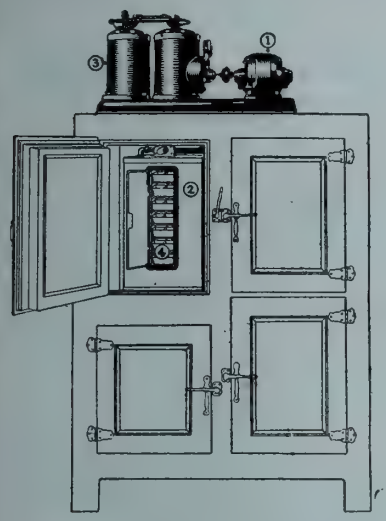
The improved valve structure consisting of threadably united casing sections having therein three valve seats arranged in plan and three valves co-operating with the seats, a nozzle projecting laterally from a section, one of said valves

(Continued on page 32)

New Goods of Interest to the Plumbing Trade

ICELESS REFRIGERATION

A new iceless refrigeration equipment is being offered the trade by the Toronto Laundry Machine Co., Ltd., Toronto, who claim that their new machine will fit any ice box and the motor may be installed either on top of the ice box itself or in any convenient place and attached to electric and water systems. And that



Iceless Refrigerator

after the first switching on of the current the equipment will maintain the exact desired low temperature automatically, day and night.

The manufacturers describe their new device as follows:

The refrigerant in the open air is a gas—harmless and unchanging. When cooled under moderate pressure it becomes a liquid and, as such, is supplied to the expansion coil in the ice chamber of the refrigerator. In the expansion coil the refrigerant expands into a gaseous form and in expanding extracts the heat from the refrigerator. When it has absorbed its quota of heat the pump removes it from the expansion coil and delivers it to the water-cooled condenser. Here the water absorbs the heat units removed from the refrigerator and the cooled gas again becomes a liquid and is ready to start on another journey through the machine. And this simple process is repeated continuously and automatically just as long as the current is on.

The moment that the exact, predetermined degree of refrigeration is reached, "click" goes the thermostat, shutting off the motor. And the moment the inside temperature rises a few degrees, "click" it goes again, starting the motor and turning on the water and the "cold" at the same time.

PUTTY FIRE CEMENT

J. H. Sankey & Son, Ltd., of 74 Cheapside, London, Eng., are offering to the Canadian trade, through their agents, Manning, Hinton & Brissenden, Halifax, N.S., "Pyruma" putty fire cement for repairing stoves, grates, fire-places, etc. The manufacturers describe this cement as made of the consistency of putty and as capable of being moulded into any form, when it will retain its shape.

They claim "Pyruma" putty expands and contracts with fire brick, iron, etc., when subjected to various temperatures, thus not cracking or breaking away when the fire is put out. The putty keeps indefinitely when not exposed to the air, and is always ready for use.

"Pyruma" putty, though new to the Canadian market, is said to be an old, tried product in Great Britain, for repairing stoves, ranges, fire-places and furnaces. It is also said to be used by stove and range makers for fixing the fire bricks in register stoves, ranges, ovens, furnaces, kilns, muffles, coppers, slow combustion and anthracite stoves; by gas companies for repairing gas retorts, as it can be applied when the retorts are hot; by railway and steamship companies as it will stand considerable vibration without being disturbed; by engineers in case-hardening iron and steel; by users of crucibles, as a coating which prolongs the life of the crucibles; by biscuit makers and bakers for repairing their ovens; and in all trades where dry heat is used.

This putty is put up in conveniently sized tins, 2, 3, 4, 7, 14 and 28 pounds, also ½ and 100 pound kegs.

ELECTRIC TOASTER AND HEATER

The Bestor Manufacturing Company, Seattle, Washington, are offering the Canadian trade several new electrical appliances, amongst which are electric toasters and electric heaters.

The manufacturers claim their new toaster has many improvements and eliminates crumb nuisance, and when turned upside down all particles of

Electric Toaster

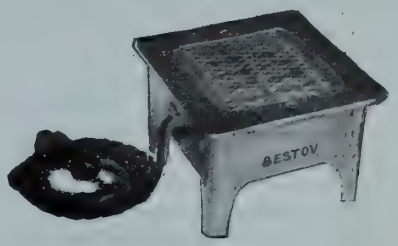
crumbs readily fall out. They also claim this appliance not only toasts quickly, but is ornamental and so sturdily built that roasts of meat or other foods may be kept warm without overheating, and at a trifling expense as the toaster is scientifically constructed on economical lines.

The manufacturers describe their new luminous heater as follows. It is an electric heater that satisfactorily compares with permanent cold weather heating installations. It is of the glowing coil, open fire place type, built of

Luminous Heater

steel, oxidized copper finish, nickel-plated guard, polished copper reflector, has large nickel-plated handles on sides which are always cool, making the heater easily portable.

Preparations are being made by this Company to establish a plant in Canada,



and they give it as their intention to be represented from coast to coast.

CANADA ASSURED OF FUEL SUPPLY

New York.—Plans for increased coal car service to Lake Erie ports—the gateways of North-Western States—to prevent all possibility of a winter coal famine were agreed upon at a recent conference here between the Association of Railway Executives and the National Coal Association, the latter representing the bituminous industry.

"The adoption of the plan by the Interstate Commerce Commission means," the statement added, "an increased supply with sufficient direction of shipments to insure an adequate coal inflow to Lake Erie ports for transhipment to the North-West States and Canada."

Guelph, Ont.—Howard and McCarvell have been awarded contract for plumbing and furnace work for forty commission houses to be completed by January 1st, 1921.

Volume of Exports Gradually Climbs

Reduction of Debit Balance Shows in June Trade Report—Dominion Has Been Heavy Buyer of Iron and Steel Products

Montreal.—Detailed figures of the trade of Canada for the month of June, just made public by the Department of Customs at Ottawa, contain one feature of encouragement, inasmuch as the debit balance against the country is reduced by about $7,950,000 when compared with the debit of last May, made up of an increase of $29,195,257 in exports and an increase of $21,244,445 in imports, a total increase in the month of $50,439,702.

During the year a favorable balance of $12,000,000 in June, 1919, has been changed to a debit balance of $28,000,000 last June.

A glance at the detailed figures following shows how the debit balance has been made. Apparently Canada has been a heavy buyer from the outside of textiles, textile products and fibres, of iron and steel and manufactures thereof, and of non-metallic minerals, of which undoubtedly coal forms the principal part, while in a minor degree the adverse balance has been caused by the excess of buying of vegetables and agricultural products not classed as foods, of chemicals and other articles not classified.

On the other hand, the exportations of agricultural products of animal and animal products, and of wood, paper and paper manufactures showed remarkable increases over the importation of these commodities.

Despite Canada's great mineral resources and her facilities the importations of iron, steel and coal and manufactures thereof, continue to stand out of all proportion to the exports, iron and steel imports amounting to over $26,000,000, against exports of $9,000,000.

Among the exports to show an increase over May were iron and steel, etc., up about $3,000,000; wood and paper, etc., up about $9,000,000.

Since June a year ago the importations of commodities into Canada have increased by 59½ millions and the exports by 19 millions.

Among the exports iron and steel and manufactures thereof have increased in the export by nearly $3,000,000 and in the import by over $11,000,000. Exports of wood, paper and paper products have increased $17,000,000, and imports of like commodities have increased $2,300,000.

SASKATOON HOUSE STANDS UP

Building Constructed on Refrigerator Plan Proves Successful; Electric Heat

Saskatoon.—Built on the principle of a refrigerator, with its walls insulated to keep the cold out, a new idea in construction of residences is being tested in Saskatoon. This residence has been used for a year, being occupied by the designer and his family. It was tested severely during the last winter when temperature ran to forty below zero, but it stood the test and was heated throughout with electrical heat during the hardest weather. The walls were designed to keep the cold out and appear to have done so.

The walls are hollow, the outer walls being cement plaster on metal lath with a top coat of stucco. Back plaster is placed between the metal lath and the studding. The outer wall is a sheet of concrete one and one-half inches thick. The inner wall is of two layers of asphalt paper with wood lath and plaster on top. The airtight space in the wall is filled with insulating material granulated cork with a mixture of planed shavings. The theory on which it is built is to prevent the movement of warmed air toward a cold surface.

The cost of construction was given as 10 per cent. above ordinary methods. The purpose of the test in construction was to learn how greatly heat conservation might be developed. On the cold prairies the conservation of heat and fuel in winter is an important item. The test house has attracted much attention from construction and heating engineers.

CENTRAL STATION HEATING

(Continued from page 28.)

The service pipe to each house should be 3-4 in. pipe, of galvanized iron. The house piping is ¼ in. lead piping reinforced with galvanized steel wire.

The air pressure in the street mains is carried at about 15 lbs. per square inch.

The diaphragm valve, that is used to control the rate of water circulation through the mains, is held open by a coiled spring. The diaphragm is at all times either subject to the pressure of the air or the pressure of the spring. The pressure of the spring holds the valve open; the pressure of the air closes the valve.

The thermostat may be in the form of a metal disc which contains a highly volatile fluid, or it may be made of metal or vulcanized rubber. The thermostat expands and contracts with varying temperatures. These expansions and contractions are sufficient to open or close a valve in the air line, and thus subject the diaphragm valve to air pressure or releasement.

The air line should be fitted with a dust separator and a test branch.

(To be continued in next issue)

NEW CANADIAN PATENTS

Continued from page 30

representing a top or controlling valve and another representing a middle valve which comes adjacent to said nozzle, a connection between the controlling valve and the middle valve whereby to turn the latter with the former, means for preventing the rotation of the third valve while permitting longitudinal movement thereof, a screw connection between the middle valve and the third valve so arranged that when the middle valve is turned it will climb on the screw, said connection between the controlling valve and middle valve affording a stop to limit the climbing movement of the middle valve without interfering with the rotary movement thereof so that the third valve will be moved in a direction away from the middle valve, and means for operatively maintaining the controlling valve in its seat.

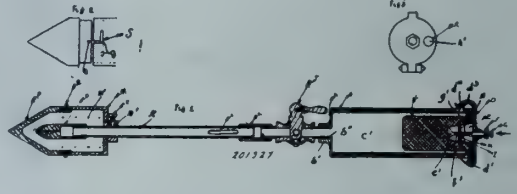
* * *

NO. 201,327. SOLDERING IRON.

Clifford Norfolk and Fred Mayor, co-inventors, both of Toronto, Ontario.

A soldering iron comprising a hollow handle containing a gas reservoir, a carbide holder therein, a water tank having an egress for its contents to the carbide holder, means for opening and closing said egress, a valve-controlled pipe for the reservoir, a burner connected with said pipe, and a hollow soldering point surrounding said burner.

A soldering iron comprising a hollow handle containing a gas reservoir, a carbide holder therein, a hinged lid for one end of the reservoir, a water tank secured to said lid having an egress for its contents to the carbide holder, means for opening and closing said egress, a valve-controlled pipe connected to the other end of the reservoir, a burner connected with said pipe, and a hollow soldering point surrounding said burner.



A soldering iron comprising a hollow handle, containing a gas reservoir a carbide holder therein, a hinged lid for one end of the reservoir, a water tank secured to said lid having an egress for its contents to the carbide holder, means for opening and closing said egress, a valve-controlled pipe connected to the other end of the reservoir, a burner connected with said pipe, a hollow soldering point surrounding said burner, and means for forcing the contents of the water tank through the egress.

Electricity May Yet Replace Coal

Two New Types of Electric Heating Devices Being Exploited—If Coal Gets Much Dearer It Will Be Cheaper to Use Electricity—Some of the Drawbacks of Electricity for Heating.

COMMENTING upon the possibility of heating Toronto's homes by means of electricity, which has come into prominence by reason of the announced discoveries of two new types of electric-heating devices. Dr. John Satterly of the thermo-dynamics department of Toronto University, stated that he could not give a scientific opinion on the subject without some knowledge of the new devices. Dr. Satterly was inclined to support the views of Sir Adam Beck on the subject.

"If coal gets dearer," said Prof. Satterly, "then electric heating may become more economical than coal, but I do not think that that time has yet arrived. Electric heating has some obvious advantages over coal, the chief of which is the utilization of all the heat energy developed, whereas in the use of coal a great deal of the heat goes up the chimney."

Dr. Satterly thought that there was not enough electrical power being developed at present to heat all of Toronto's homes by means of known electric heating devices. Because most of the power would be required in the winter, a great plant would have to be constructed to supplement the existing plants, and unless some new industries could be found that would purchase the summer output of electric power from this plant, he thought that it would be a difficult matter to secure anyone to construct and operate such a plant.

Of the two new electric heating devices one has been developed by Prof. A. W. Dorsay of Winnipeg and the other by Major William Myall of Toronto. The Winnipeg man maintains that he can heat all the homes in Winnipeg in 40-below zero weather at a rate that would make the cost of heating an eight-room house about $9 a month. The Toronto man does not advance such comforting estimates, but he does maintain that if the power were available Toronto's homes could be heated for less than they can by means of coal. While P. W. Ellis, chairman of the local Hydro Commission, is ready to throw up his hat and cheer for the man who can produce a practicable device that will reduce the present costs of heating, Sir Adam Beck states that as far as known electric heating apparatus is concerned there are three grave objections. The first is insufficiency of the available power; the second, the fact that the greatest supply would be needed in the winter months, which is now the time of the heaviest demands on the Hydro system. The third objection, according to Sir Adam, is that electric heating would be more costly than coal, but he stated that if the power could be taken at night and stored so that it could be used in the day time, it would make a great difference in the problem.

Organization of Quebec Plumbers

Montreal.—Sanitary Engineer is informed that an effort is afoot tending toward the formation of a Provincial Association for the Province of Quebec.

It has long been recognized by many Master Plumbers in this part of the country that there is much to be gained by the uniting of forces. Associations have proven themselves to be of great value to the craft elsewhere. Now, this is being so definitely recognized by a number of leading members of the Montreal Association that there is reason to hope that matters will, in a short time, take such definite form as to enable plumbers in outside cities to take a real interest in the broader phases of trade development. There is one best way to attain this end—that of the formation of a Provincial Association, and this will probably be consummated within the next few months, or perhaps sooner. Plans are already being considered.

Quebec City Interested

While plans have not developed to such an extent that Sanitary Engineer can outline them, it has been pointed out before that many of the Masters of Quebec City have desired a closer and better understanding. This city has a good working association already, Sanitary Engineer understands, and with some hard work on the part of those who believe in concerted effort there is no doubt that interest can be aroused in other centres.

The craft should be encouraged. The Master Plumber is recognized as a force for good in these days of the higher plane of living to which people are fast becoming accustomed. It is an ideal moment to improve, therefore, from the plumbers' standpoint and when the ideas are developing in the mind of the householder for newer and better fixtures and plumbing, then is the time to get in one's best arguments. In no way can advantage be better taken of the change in the desire for better plumbing than by forming associations, studying all that is best and newest for the builder and house owner, and giving, through this combined effort, a better service.

Sanitary Engineer warmly commends the action of one or two members of the Montreal Association for their interest in the effort being made to establish a Provincial Association. LET ALL GET BEHIND THE MOVEMENT AND PUSH.

NO RELIEF IN STEEL SHEETS THIS FALL

Montreal.—Discussing the steel sheet situation with W. E. Ramsay, vice-president of the Pedlar People, Montreal, he stated to Sanitary Engineer that the outlook for supplies of steel sheets this fall was hopeless.

"Never in my history have I seen the situation anything like it is to-day," said Mr. Ramsay. "If strikes and other difficulties continue as they are at the present time in the United States there will be absolutely no chance of relief this fall. When one goes into the market to buy a product he does not know what he will have to pay. Producers will take an order for a quantity to be shipped later, but only on the understanding that price ruling at date of shipment will apply. Not in all my experience have I seen conditions as serious as they are at the present time and this applies as well on both black and galvanized sheets."

LUMBER OUTLOOK IN RELATION TO BUILDING

A question which has evoked much discussion lately, in view of the building going on, is whether there will be a material slowing up in Ontario this summer and what the effect would be upon lumber prices and the general lumber situation. Men prominent in the lumber business state that the building in cities is running ahead of last year. In the country the operations are fair, in some sections very good, and in others to the contrary, but the average is very satisfactory and the demand for material continues to be good. At any rate some slackening off is generally looked for at this time of year.

There seems to be little prospect of any satisfactory reduction in the price of lumber, while the costs of production remain so high. In the West there has been a drop, but local dealers contend that it is debatable whether it will continue or not. The cut of logs has not been as large in the East as expected on account of the scarcity of labor, and driving operations have been slow. Unfilled orders plus the new ones are taking the new stock about as fast as it comes into condition.

KINGSTON SANITARY INSPECTOR BUSY

Kingston.—At a recent meeting of the Board of Health, Sanitary Inspector Carson reported that he had served fifty-three notices on residents to instal flush closets.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

THE MARKETS AT A GLANCE

PRICES continue to be quoted from a very firm basis for nearly all lines of plumbing and heating supplies, and the tendency is for still higher quotations. Wrought pipe has shown further advances over those reported in last issue and new higher lists have been issued. Stillson wrenches and parts have also been revised upwards while some lines of steel baths have also been marked up.

Resale business is very quiet, although nearly all in the trade are busily engaged with the work already on hand. The scarcity of raw materials, continues to hamper manufacturers and is reflected in the scarcity of some of the finished products. The transportation situation is also a great detriment to many industries as it has been holding up shipments of raw materials to the mills as well as the finished products from the mills. This is mainly due to the great shortage of cars, also to the fact that shipments of coal and grain at present have the preference flat or open cars being reserved for coal transportation while the box cars are reserved for grain.

Collections continue to come forward promptly and the prospects for fall business seem very bright in view of the satisfactory crop prospects as well as general conditions.

MONTREAL

MONTREAL, July 31.—Price tendencies are still steady on many lines, firm on others, and strongly upward on others. The difficulty of obtaining some lines is as great or greater than ever. Sheets, for instance, are not going to be had this fall "for love or money," if the opinions of some of the best informed men in the trade go for anything. Slow transportation and high freight rates will be an added reason for higher prices on many or perhaps, to an extent, on all lines as soon as the new rates become operative. Sheets are somewhat higher this week, and the basis may not hold for any length of time even at that. Standard pipe is firm as are also fittings, compression work and valves, soil pipe and fittings. Boiler tubes are hard to procure and it will not be surprising if prices advance. Conductor pipe and eavestrough are very firm and the basis is dependent upon supplies of sheets. Corrugated sheets are not plentiful and the price basis may advance. Lead products are steady and active, but the basis is unchanged. Enamelled ware is steadily held without change. Boilers are firm. Cotton waste is steady. Ingot metals are somewhat firmer, with lead scarce. The only item in the list showing weakness is oakum, and this is quoted down at 9½c per lb.

Prices Are Lower on Plumbers' Oakum

Montreal.

OAKUM.—A decline of 50c per 100 lbs. on plumbers' oakum has been registered. This makes the present quotation $9.50 per 100 lbs. and the demands, at this season, are fair, but not excessive. Stocks are reported fair.

Improvement Impossible This Fall on Sheets

Montreal.

SHEETS AND PLATES.—That there will be a continued scarcity of steel sheets and plates this fall is expressed on many sides. There is not the slightest hope, in the opinion of a large manufacturer, consulted by Sanitary Engineer, that there can be the desired improvement this fall. To obtain supplies at the present time it is necessary to go out and scour the market. Then prices quoted are likely to be higher than one has paid even a day or two previously. Orders will only be accepted now subject to prices ruling on date of shipment.

BLACK SHEETS—

10 gauge	9 00
12 gauge	9 05
14 gauge	9 10
16 gauge	9 35
18-20 gauge	9 40
22-24 gauge	9 45
26 gauge	9 50
28 gauge	9 50

GALVANIZED SHEETS—

U.S. Standard—	
10¾ gapge	13 00
28 gauge	12 60
26 gauge	11 25
22 and 24 gauge	12 05
20 gauge	12 05
18 gauge	12 05
16 gauge	10 75
English Standard—	
28 gauge	13 50
26 gauge	13 25
24 gauge	12 65
22 gauge	12 30
18 and 20 gauge	11 85

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Pipe Will be High; Not Easily Obtained

Montreal.

PIPE.—Demands for pipe from various sections of the trade continue to be heavy. There is every reason to expect that tendencies will rule strong, for the supplies are taxed as soon as available at the mills. Larger sizes than two inch are scarce and in view of the outlook for the near future prices cannot be expected to drop. The lists, as revised a couple of weeks ago, still obtain.

PIPE—WROUGHT

Price List, No. 45—July, 1920.

STANDARD BUTTWELD S/C

Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
⅛	$ 6 50	$ 8 50	$.....	$.....
¼	5 31	7 41	5 91	8 01
⅜	5 31	7 41	5 91	8 01
½	7 10	8 63	7 95	9 48
¾	8 80	10 87	9 95	12 02
1	13 01	16 07	14 71	17 77
1¼	17 60	21 74	19 90	24 04
1½	21 04	25 99	23 79	28 74
2	28 31	34 97	32 01	38 67
2½	44 75	55 28	....	....
3	58 52	72 29	....	....
3½	74 06	90 62	....	....
4	87 75	107 37	....	....

STANDARD LAPWELD S/C

Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
2	$32 01	$ 38 67	$35 71	$42 37
2½	48 26	58 79	54 11	64 64

3	63 11	76 88	70 76	84 53
3½	75 90	92 46	85 10	101 66
4	89 98	107 55	100 83	120 45
4½	1 05	1 29	1 30	1 54
5	1 22	1 50	1 52	1 80
6	1 58	1 95	1 97	2 33
7	2 06	2 53	2 53	3 01
8L	2 16	2 66	2 66	3 16
8	2 49	3 07	3 07	3 64
9	2 98	3 67	3 67	4 36
10L	2 77	3 41	3 41	4 05
10	3 56	4 39	4 39	5 21

Fitting Lists Hold; and Demands Active

Montreal.

FITTINGS.—The market undertone is strong. Demand from various sources is quite active, season considered, and there is bound to be a maintenance of this basis under raw material conditions.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	Plus 50%
Do., 2½-in. and larger	8%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Demands Are Fair For Pipe and Fittings

Montreal.

SOIL PIPE AND FITTINGS.—Prices are ruling strong on soil pipe, although there has been no definite change of late. The building activity here is not marked, though there is a steady movement. Fittings are selling at unchanged prices and the tendencies are steadily firm on these.

SOIL PIPE (Medium and extra heavy)—Net.
2-3-5 and 6-inch, add 10% to list.
FITTINGS—
4-inch, net list.
2 to 6 inch, fittings, 20% discount.
8 inch pipe and fittings, add 20% to the list.

Boiler Tube Scarcity May be Prolonged

Montreal.

BOILER TUBES.—The market rules strong on this line. Supplies are none too easily obtained and the transportation difficulties still confront the importer. Some expect that prices, instead of easing, will be marked higher before a great while.

Valves and Cocks Are Held at Firm Prices

Montreal.

VALVES AND FITTINGS.—Prices on brasswork are naturally firm. The price of labor and the difficulties of transportation have not been minimized and tendencies are likely to rule strong for the coming weeks, and perhaps all fall. Plated work of trade-marked production is, in some cases, carrying special quotations, but most lines are firmly held.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Steel and Iron Bars of Some Sizes Scarce

Montreal.

STEEL AND IRON.—The jobbers still have difficulty in getting their requirements of steel and iron bars. The mills seem to be taxed beyond their ability to produce regularly all the sizes that are needed in the trade. At the advances made recently the market rules steadily firm and strong.

IRON AND STEEL

Iron finish machinery steel	$5 05
Norway iron	13 50 15 00
Single reeled machinery steel	6 50
Spring steel	5 50
Sleigh shoe steel	5 50
Tire steel	5 20
Toe calk steel, per 100 lbs.	5 90
Band steel	5 00
Harrow tooth steel	5 15
Mining tool steel, per lb.	0 24½
Black diamond tool steel, per lb.	0 24½
Black diamond cast steel, per lb.	0 24½
Common bar iron, per 100 lbs.	4 65
Refined iron, per 100 lbs.	5 65
Mild steel	5 00

3-16 and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

Corrugated Sheets Might Go Higher

Montreal.

CORRUGATED SHEETS.—Prices are very firm. It is not possible to forecast the trend of the market, excepting to state that there is no probability of any reductions being made. The probabilities are that prices will rule higher and in the meantime the Montreal basis for some of the gauges which are not available from stock are as follows:

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	11 00
No. 26 gauge	12 00
No. 24 gauge	17 00
No. 22 gauge	20 00

Quite Active Is Demand For Made Lead Products

Montreal.

LEAD PRODUCTS.— Prices are steady on these lines and the list has been unaltered for the past two weeks. Prices are steady, with pig lead scarce and rather firmer than it was. The trade demands are said to have improved quite a little for some weeks past, and there is a fair amount of building in prospect, which means that there still will be an outlet for these goods.

Lead pipe, per 100 lbs.	17 00
Lead waste, per 100 lbs.	18 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	List plus 30%
Lead wool, lb.	0 16
Lead sheets, 2½ lbs.	0 14
Lead sheets, 3 to 3½ lbs. sq. ft., lb	0 13¼
Do., 4 to 8 lbs., sq. ft.	0 13
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 37½
Solder, strictly, lb.	0 35½
Solder, commercial, lb.	0 33
Solder, wiping, lb.	0 32¾
Wire solder—	
40-60	0 37½
45-55	0 39¾
50-50	0 42¼
Zinc sheets, casks	0 16½
Do., broken lots	0 17

Enamelled Ware Is Held Without Change

Montreal.

ENAMELLED WARE.—Prices are steadily held on these goods and there has been no change of a quotable nature since last report was issued. Some delays are reported, due to traffic conditions but the stocks of jobbers are reported to be in fairly good shape, and demands are quite promptly met.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide	$37 05
Bath tubs, 5½ ft.	41 20
Lavatories—	
17x10" Apron F139 or P4045	11 05
18x24" Apron F154 or P3845 or P3847	17 00
18x21" Apron F169 or P4205	12 70
18x21" Roll rim F197, F199 or P4655-6	11 10
17x19" Roll rim F241 or P4345	9 05
Sinks, roll rim, 18 x 30 in.	16 60

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

No Low Prices in Sight on Range Boiler List

Montreal.

RANGE BOILERS.—The movement of range boilers to the trade appears to be very active considering the midsummer season. The undertone is strong and prices, while ruling without change, are very subject to revision, under the difficulty of obtaining the plates for making them.

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Old Material Is Quiet; But Prices Maintained

Montreal.

OLD MATERIAL.—Prices are steadily held on the various lines of old scrap but there is an undertone, due to the smallness of the demand from manufacturers for supplies. Country dealers have not been sending in very extensive supplies. If manufacturers come into the market soon it will serve to strengthen the undertone; otherwise there may be a general revision of prices downward.

DEALERS' BUYING PRICES

Pipe scrap		16 00
No. 2 busheling	12 50	13 50
Stove plate, per ton		27 00
Yellow brass	0 10	0 11
Red brass	0 17	0 18
Light brass	0 08	0 09
Scrap zinc	0 07	0 08
Heavy copper		0 18
Wrought iron, No. 1, per gr. ton		22 00
Heavy melting steel		22 00
Heavy lead	0 06	0 07
Tea lead		0 03½

Waste Held Unchanged; Will Likely be Steady

Montreal.

COTTON WASTE.—The market is steady and unchanged, with stocks in satisfactory shape to take care of the demands. Prices, say the importers, are unlikely to change in any way for the balance of the season, unless some unforeseen condition arises.

WASTE

Cream, Polishing	0 28

WHITE		
XXX	....	0 24
XX	....	0 22½
X	....	0 20
XC	....	0 18½
Japanese	....	0 17
XXX	....	0 24
XX, grad.	....	0 22½
XLCR	....	0 21
X Empire	....	0 19½
X Press	....	0 17½
X Special	....	0 15½
COLORED		
No. 1	....	0 18
No. 7	....	0 16
No. 1A	....	0 14½
No. 1B	....	0 12½
Fancy	....	0 19
Lion	....	0 17
Standard	....	0 15
Popular	....	0 13
Keen	....	0 11

Above lines subject to trade discount for quantity.

Various Ingot Metals Have Stronger Undertone

Montreal.

INGOT METALS.—Prices on various ingot metals are ruling steady. Some lines are firmer, such as lead and tin, though there is little quotable change.

TIN.—London markets have settled away to a more steady basis. The local demand is fair, with prices holding at 58 to 60 cents per lb.

COPPER.—Prices on copper are a trifle firmer. Electrolytic is selling at 24½ cents per lb. and casting at 24c.

LEAD.—The movement of lead is quite active. Importers state that there is some difficulty in obtaining the necessary requirements from both Canadian and British producers, and as there is quite a bid for the product everywhere, it is expected that prices will be firm. Present quotations are holding at 10¼c per lb.

SPELTER.—Fairly firm, with prices uncharged at 11c per lb.

ANTIMONY.—This line is quiet and still there has been no reduction from the basis of 11 to 12 cents per lb.

ALUMINUM.—What small quantities of this are selling take a price basis of from 37 to 39 cents per lb.

TORONTO MARKETS

TORONTO, July 30.—A fair buying movement is being made throughout the trade and business is somewhat quiet although all in the trade are busy with work in hand.

A further advance has been made on the price of wrought pipe and a new net list number 46 has been issued. Stillson wrenches have also been marked up. Radiators are very firm and are in good demand. Hot water boilers are also quoted from a firm basis. A good demand is also being made for closet bowls and combinations, corrugated elbows, combination sinks and gas heaters.

The enamelled ware situation has shown considerable improvement and stocks are in better condition. The quotations on many lines are very firm and the tendency is still for higher prices.

Freight transportation continues to be a source of inconvenience for many, owing to the serious shortage of box cars and disruptions of the service.

Collections continue to come forward very satisfactorily.

Hot Water Boilers Have Seasonable Demand

Toronto.

HOT WATER BOILERS.—A very seasonable demand is being made for many kinds and styles of hot water boilers and many in the trade are kept busy with installations, repairs and replacements, etc. The price is quoted from a firm basis, the quotation being 45 per cent. discount from the list.

Closet Bowl Shipments Coming Satisfactory

Toronto.

CLOSET BOWLS.—Fair deliveries have been coming forward for closet bowls although there is still room for improvements of shipments. English manufacturers seem to be gradually becoming better equipped to handle export business, which is generally said to be picking up on many lines. Quotations remain firm and steady. The tendency is for higher prices.

Combination Sinks With Tray Have Big Demand

Toronto.

SINK AND TRAY COMBINATIONS.—The demand continues to be a very satisfactory one for many lines of sink and tray combinations. This is partly attributed to the great number of houses that are nearing completion as well as the great number of changes that are being made in houses already equipped. Prices continue very firm and unchanged.

Radiators; Good Demand; New Quotation Firm

Toronto.

RADIATORS.—The new prices as quoted in last issue on radiators do not seem to have affected sales or installations, and those interested in this line are kept very busy handling the demand. Supplies are none too plentiful, manufacturers still finding great difficulty in securing sufficient material or fuel as the case may be.

The following are some of the quotations on the better known lines:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 40% for hot water and 41% for steam.

Wall Radiators.—5 in., $1.15; 6 in., $1.10; 7 in., $1.05; 9 in., $1.05; 12 in., $1.05. Discount 40%.

Wrought Pipe Prices Advance; New List No. 46

Toronto.

WROUGHT PIPE.—New and higher prices have again been made on wrought pipe. The scarcity for some sizes continues to be very pronounced. This is said to be in line with present conditions, such as the shortage of freight cars, scarcity of skelp and raw material, as well as the great difficulty of securing supplies of fuel.

There is also said to be a new ruling as regards to freight transportation, stating that open cars are to be used for coal transportation and the closed or box cars for the shipment of certain grains.

There is also a ruling whereby it is necessary for the shipper to secure a permit for the use of freight cars and that he is required to load any cars he may have the same day as the permit is issued or else his permit is cancelled and the car passed along to someone else. These conditions all have an important bearing on the supply of pipe to the consumer.

The following are the new quotations:

Standard Buttweld Pipe

Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
⅛	$ 6 50	$ 8 50	$.....	$.....
¼	5 31	7 41	5 91	8 01
⅜	5 31	7 41	5 91	8 01
½	7 10	8 63	7 95	9 48
¾	8 80	10 87	9 95	12 02
1	13 01	16 07	14 71	17 77
1¼	17 60	21 74	19 90	24 04
1½	21 04	25 99	23 79	28 74
2	28 31	34 97	32 01	38 67
2½	44 75	55 28	....	....
3	58 52	72 29	....	....
3½	74 06	90 62	....	....
4	87 75	107 37	....	....

Standard Lapweld Pipe

Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
2	$32 01	$ 38 67	$35 71	$42 37
2½	48 26	58 79	54 11	64 64
3	63 11	76 88	70 76	84 53
3½	75 90	92 46	85 10	101 66
4	89 93	107 55	100 83	120 45
4½	1 05	1 29	1 30	1 54
5	1 22	1 50	1 52	1 80
6	1 53	1 95	1 97	2 33
7	2 06	2 53	2 53	3 01
8L	2 16	2 66	2 66	3 16
8	2 49	3 07	3 07	3 64
9	2 98	3 67	3 67	4 36
10L	2 77	3 41	3 41	4 05
10	3 56	4 39	4 39	5 21

Firm Price Holds on Closet Combinations

Toronto.

CLOSET COMBINATIONS. — Practically no change has been made in the situation regarding this commodity. There has been some difficulty in secur-

ing some styles of the high-up tank. However, this is believed to be only a temporary situation. The price remains steady and firm.

Corrugated Elbows Becoming Very Scarce

Toronto.

GALVANIZED ELBOWS.—The great shortage of sheets still continues to seriously affect the manufacture of many products and galvanized elbows are no exception to this condition. Especially does this apply to corrugated, and manufacturers are of the opinion that if shipments of raw material do not come forward more promptly the scarcity for this commodity may be more pronounced. The present quotations are very firm with a tendency for higher prices in the near future.

Still Heavy Demand For Gas Water Heaters

Toronto.

GAS WATER HEATERS. — There still appears to be some on the waiting list for some styles of gas water heaters as well as repairs for some makes. This is partly due to the difficulty of securing sufficient castings, as there seems to be such a heavy demand for various lines of castings manufacturers have difficulty in keeping all branches satisfied. Prices remain very firm, although unchanged.

Range Boiler Prices Firm; Still Scarce

Toronto.

RANGE BOILERS.—Little change has been shown on range boilers. Prices are still very firm and boilers are hard to procure in quantities. This is said to be due to the inability of the manufacturers to keep up with the demand, due to the shortage of raw material and other factors.

The following are the present quotations:

Range Boilers—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Higher Revised Prices For Stillson Wrenches

Toronto.

WRENCHES.—Higher prices have again been made on some lines of mechanics' tools which affects the price of Stillson wrenches. The new quotations are approximately 7 1-2 per cent. higher and are quoted as below. The discount for the Canadian make is 40 per cent. off the list.

STILLSON WRENCHES—	
6 inch, per doz.	$18 20
8 inch, per doz.	20 40
10 inch, per doz.	22 80
14 inch, per doz.	31 80
18 inch, per doz.	35 60
24 inch, per doz.	66 00
36 inch, per doz.	123 00

Lead and Zinc Products Have Steady Quotations

Toronto.

LEAD AND ZINC PRODUCTS show practically no change. This may be due to the quietness of the basic metals. The demand has slackened off some. This is said to be a normal condition and is usual for this season of the year, and is partly attributed to the holidaying season.

The present quotations continue steady and are quoted from a firmer basis. Lead traps and bends are still quoted at a discount of 30 per cent. from the list, lead waste pipe at 18 cents per pound and lead pipe at 17 cents per pound. Solder is also unchanged. The following are the quotations on some of the better known lines:

Lead pipe, list, per lb.	0 17
Lead waste pipe, list, per lb.	0 18
Do., over 8 in., list, per lb.	0 19
Lead traps and bends	add 30%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 13
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 43
Solder, strictly, lb.	0 35
Solder, commercial, lb.	0 33
Solder, guaranteed, lb.	0 36
Solder, wiping, lb.	0 33
Zinc sheets, per lb.	0 19

Enamelled Ware Supply Shows Improvement

Toronto.

ENAMELLED WARE.—The season for installing enamelled ware is fast approaching and many are making preparations for a very busy period. The situation in comparison with that of last year has shown a great deal of improvement and manufacturers have distributed a greater amount of stock amongst all sections of the trade and seem to have the situation well in hand, a condition which is very creditable considering the great difficulty of securing fuel, raw material and other necessities required for the manufacture.

The present quotations have shown no change, although the price has been held very firmly. Some of the quotations on a few of the better known lines are as follows:

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	$37 05
Bath tubs, 5½ ft.	41 20
Lavatories—	
17x10" Apron F139 or P4045	11 05
18x24" Apron F154 or P3845 or P3847.	17 00
18x21" Apron F169 or P4205	12 70
18x21" Roll rim F197, F199 or P4655-6	11 10
17x19" Roll rim F241 or P4345	9 05
Sinks, roll rim, 18 x 30 in.	16 60

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Compression Work Has Active Demand

Toronto.

COMPRESSION WORK. — Practically no change has been made in the situation regarding compression work The prices continue firm and seem fairly steady. A heavy demand continues for many lines, which is very gratifying to all in the trade.

The following are the quotations on some of the better known lines:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Still a Scarcity for Various Pipe Fittings

Toronto.

PIPE FITTINGS.—The new quotations previously quoted on pipe fittings are holding very firm. The situation shows little change. Some sizes are still scarce due to the unsettled general condition on the market.

The following are the present quotations:

PIPE FITTINGS	
Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart union, ¼-in. to 2-in.	8%
Do., 2½-in. and larger	Plus 5%
Nipples, up to 4-in.	50%
Do., 4½-in. and larger	40%
Do., running thread, 4-in. and under	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS		
Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Famine Continues in Sheets and Plates

Toronto.

SHEETS AND PLATES.—The great shortage of sheets continues to affect the manufacturers and little relief has been shown the situation. Jobbers seem very pessimistic as regards future supplies and deliveries.

One of the main factors given for the great scarcity that is at present prevailing is the great tie-up of shipping facilities and freight cars of all kinds are at a premium, as nearly all open cars are used for coal and nearly all box cars are being used for grain. In many localities it is necessary for the manufacturers and all those waiting to ship goods to secure a permit for each car and each permit is only good for one day and should the shipper fail to make shipment within the specified day, his permit is cancelled and the car goes to someone else.

The following quotations on sheets and plates are published here merely as a guide, and while these prices are recognized as standard many are charging premiums on account of having to go into the local markets or are required to pay heavy premiums from the mill for any spot deliveries they may receive.

The following is the list of prices:

BLACK SHEETS	
14 gauge	$8 95
16 gauge	9 00
18-20 gauge	9 45
22-24 gauge	9 50

26 gauge	9 55
28 gauge	9 65
3-16 inch plate	9 75
¼-inch boiler plate	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$12 00	$12 50	$12 00	$13 25
U.S. 28	11 45	12 70	11 45	12 85
U.S. 26	11 15	12 40	11 15	12 55
22 and 24	11 00	12 25	11 00	12 40
18 and 20	10 70	11 95	10 70	12 10
16	10 70	11 95	10 70	12 10
12 and 14	10 55	11 20	10 55	11 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Eavestrough, Conductor Pipe, Etc., Still Scarce

Toronto.

CONDUCTOR PIPE.—The great scarcity of galvanized sheets has been a serious drawback to the manufacture of conductor pipe, say the manufacturers, and as a result the quantity of conductor pipe is limited.

EAVESTROUGHING. — The above conditions also apply to the manufacture of eavestroughing and both commodities are quoted at a firm price, with a decided tendency to again advance if the situation is not soon relieved by shipments of raw material.

The following are the quotations:

PIPE (Conductor)

Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in	$6 90	15-in	$12 50
10-in	7 70	18-in	16 00
12-in	9 10		

Add 15% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Boiler Tube Shipments Still Coming Slowly

Toronto.

BOILER TUBES.—There is still said to be a scarcity of some sizes of boiler tubes, although fair shipments are still being sold. The shipments that are coming forward are very unsatisfactory with regard to quantity, which is due to the shortage of cars at the mills. This shortage is also attributed to the scarcity of skelp, partly due to the shortage of raw material and transportation, although the excessive demand is not to be overlooked. Those closely connected with the situation state that great volumes of pipe, and incidentally skelp, are being used this year for extension and research work, which naturally affects the supplies.

The following quotations, although the recognized standard prices, may vary somewhat with some of the prices being charged owing to the shortage of some of the best selling sizes, as it is often necessary for jobbers to go into the local market and buy small lots:

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	.....
1¼ inch	30 00	.....
1½ inch	31 50	.....
1¾ inch	33 00	30 00
2 inch	37 00	32 00
2¼ inch	37 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Cotton Waste Prices Unchanged Remain Steady

Toronto.

COTTON WASTE.—Quotations remain fairly steady on cotton waste, the price being firm, however, with a tendency to hold present figures for some time to come although many are expecting the harvesting of the new crop to have some effect on the situation.

The following are the present quotations:

Waste Materials Have Weak Sagging Tendency

Toronto.

WASTE MATERIALS.—A very quiet buying period is being experienced by dealers in waste materials and little improvement has been made on the movement of materials and the present market is very sluggish. Dealers are looking for lower prices and have little hopes for the situation to recover in the near future. Transportation difficulties are given as one of the factors, although the exchange situation is also an important factor. The fact that it is a stagnant market does not augur well for prospective buyers and many are holding back and only buying their actual need, and very few seem to be interested in future purchases.

Enameline and Steel Baths Have Advanced

Toronto.

BATHS.—New and higher prices have been made on some lines of baths. The steel bath and enameline with steel rim are priced at higher figures, which are quoted as follows:

Steel Baths with Steel Rim—	
4 ft. 6 in.	$16 25
5 ft.	16 25
5 ft. 6 in.	17 15
6 ft.	18 75
Enameline Baths with Steel Rim—	
4 ft. 6 in.	$15 75
5 ft.	15 75
5 ft. 6 in.	16 25
6 ft.	17 50

WASTE

Cream, Polishing	0 28

WHITE

XXX	0 23
XX	0 21½
X	0 20
XC	0 18½
Japanese	0 17
XXX	0 24
XX, grad.	0 22½
XLCR	0 21
X Empire	0 19½
X Press	0 17½
X Special	0 15½

Ingot Metals Have Quiet Buying Period

Toronto.

INGOT METALS.—Any slight changes that have been made on the price of ingot metals during the week have been offset by the rate of exchange, leaving present quotations unchanged. Business is fairly quiet although the amount of business being handled is satisfactory considering the season of the year.

TIN.—Practically no change has been made on the price of tin this week, the quotation remaining at 63 cents per pound.

LEAD is steady, although the price is unchanged and is still quoted at 10½ cents per pound.

SPELTER.—The quotations ter show no change. The demand is fair. The present price is quoted at 10¾ cents per pound.

ANTIMONY has shown considerably more strength and the demand is somewhat heavier. The quotation remains unchanged, prices being from 12½ cents to 15½ cents per pound.

COPPER.—Quotation on copper shows little change, although the situation is somewhat stronger. The price remains at 24 cents per pound.

ALUMINUM.—Practically no change has been shown on aluminum, the price remaining at 37 cents per pound.

WINNIPEG MARKETS

WINNIPEG, July 29.—The plumbing and steamfitting business is reported exceptionally good all through Western Canada. Jobbers are all looking forward to enormous business this fall. They anticipate considerable building and with the crop conditions, which are reported to be the best in years, the possibilities are most favorable. There has been a serious shortage of closet bowls and malleable pipe fittings Range boilers have been very hard to procure in the past but deliveries have improved considerable. Cast iron pipe is in good demand and the jobbers are able to take care of their orders. There has not been a large sale of porcelainware, due to the fact that jobbers have been able to get good deliveries of cast iron enamelware and have been pushing this sale. Wrought iron pipe is very difficult to procure and shipments are coming in very slowly, due to the tie-up of the railroads. Stocks are very light. The price on white cotton waste does not seem to improve. Prices are very firm. There is a fair demand.

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Various Valves Have Good Demand; Tendency Up

Winnipeg.

VALVES.—Certain styles and sizes of valves are in very heavy demand. This is attributed to merchants generally sorting and preparing their stocks for the harvest season, which is so near at hand.

Prices are very firm, although no recent changes have been made on quotations. The tendency is for higher prices and some lines show evidence of very light stocks.

Some of the quotations current are as follows:

Standard Globe and Angle Valves—¼, 79c; ⅜, 85c; ½, $1.10; ¾, $1.39; 1, $1.98; 1¼, $2.77; 1½, $3.85; 2, $5.83.

Standard Horiz. Check Valves—¼, 72c; ⅜, 77c; ½, 99c; ¾, $1.27; 1, $1.76; 1¼, $2.48; 1½, $3.47; 2, $5.23.

Steam Radiator Valves—½, $1.89; ¾, $2.28; 1, $2.85; 1¼, $3.84; 1½, $4.86; 2, $7.86.

Compression Work Prices Firm; Fair Demand

Winnipeg.

COMPRESSION WORK.—The present quotations on brass valves, brass steam and bath cocks are very firm and although no change has recently been made on these lines, the tendency is for higher quotations. Business continues fairly active, although the present period is a quiet season of the year. However, there are many jobs now under way which will need to be equipped with this commodity. The following are the present quotations on some of the better known lines:

Plain Comp. Bath Cocks, $4.06; Indexed Comp. Bath Cocks, $5.04; Plain Fuller Bath Cocks, $4.95; Indexed Fuller Bath Cock, $5.88.

Brass Steam Cocks—¼, 77c; ⅜, 90c; ½, $1.13; ¾, $1.53; 1, $2.12; 1¼, $3.33; 1½, $4.37; 2, $6.57.

Indexed Basin Cocks, $2.06 each; Plain, $1.80; Quick Opening, $3.33.

Stop and Waste Cocks—½, $1.50; ¾, $2.05; 1, $3.69.

Enamelled Ware Prices Firm; Business Quiet

Winnipeg.

ENAMELLED WARE.—Business is comparatively quiet, especially the past several days. This, however, is believed to be a seasonable condition for this period of the year. The present quotation on nearly all lines of enamelled ware is very firm and whether a change is made in the price in the near future remains to be seen. The situation, however, at present seems to be very steady and many are hoping for at least a continuation of the present quotations. The prices on some of the better known sizes and styles are as follows:

Bath Tubs—4 ft., $38.50 net; 4½ ft., $40.25; 5 ft., $40.40; 5½ ft., $44.95.

Lavatories—18x21 P., $42.05, Apron, $13.70; 17x19, P., $40.45, Apron, $12.40; 18x24, P., ..., Apron, $18.95; 18x21, P., $43.35; R.R., $11.90; 16x19, P., $43.45, R.R., $9.75; 18x30, R.R. Sink, $17.95; 16x24, F.R. Sink, $7; 18x30, F.R. Sink, $7.60; 20x30, F.R. Sink, $8.45.

Cast Iron Soil Pipe Prices Advance

Winnipeg.

SOIL PIPE.—A revision has been made in cast iron soil pipe quotations, the new prices being on a higher level. The higher cost of raw material, labor, hauling and other charges are given as the main reasons for the latest advance.

The following are the new quotations:

2 and 3 inch, 5% adv.; 4 inch, 7½% off; 5 and 6 inch, 5% adv.; 8 inch, 10% adv.

Soil Pipe Fittings—2 and 3 inch, 15% off; 4 inch, 20% off; 5 and 6 inch, 15% off; 8 inch, 10% adv.

Range Boiler Prices Very Fair; Stocks Light

Winnipeg.

RANGE BOILERS are quoted at very firm prices.

The shortage of raw material seems to be one of the main factors that the manufacturers have to face, although the scarcity of coal and other fuel has also been a drawback. Transportation facilities have also been working against the manufacturers' interests and many shipments of raw material have been tied up in transit as a result. The present quotations on range boilers are very firm, although no change has been made in the price. The following are the prices that are current:

RANGE BOILERS—

	Standard
30 gallons	13 65
35 gallons	16 50
40 gallons	19 50
52 gallons	26 00
66 gallons	38 00
82 gallons	45 00
100 gallons	57 00
120 gallons	70 00

Cotton and Wool Waste Prices Firm; Unsettled

Winnipeg.

COTTON WASTE.—A fair demand is being made for cotton waste. Prices are firm, although the situation is rather unsettled, owing to the uncertainty of this year's cotton crop.

Some of the quotations are as follows:

Cotton Waste—White, in bale lots, $21.50, and in less than bale lots, $22.50 per 100 lbs.; bale lots, $24.50, less than bale lots, $25.50; standard colored in bale lots, $17, in less than bale lots, $18; wool waste, colored, in bale lots, $24; less than bale lots, $25 per 100 lbs.

Porcelain Ware Prices Now Cost Trade More

Winnipeg.

PORCELAIN WARE.—An advance of from 5 to 7 per cent. has been made on the prices of English porcelain enamelled ware. The English manufacturers have been able to make better shipments to the West and there seems to be a fair demand, owing to the difference in the price.

Business is reported good and prospects are bright all through the West, and dealers seem very optimistic over crop conditions and are preparing to take care of the demand, which is sure to be heavy if the farmers are successful in harvesting a good crop, which has been greatly benefited by favorable rains during the past week.

Wrought Pipe Prices Again Marked Up

Winnipeg.

WROUGHT PIPE.—Further advances have again been made on wrought iron pipe.

The situation has little prospect of an early relief as regards supplies, deliveries and other conditions, and while in the majority of cases manufacturers are willing to sell with the privilege of delivery 4 to 6 weeks after receipt of order, there is some indication that this period may be lengthened and purchasers will have to wait probably several months for regular size orders, while special large orders may have to be arranged specially.

The following is a list of the new net prices on the best known lines:

BLACK PIPE.
F.O.B.

Sizes ins.	Winnipeg	Calgary Edmonton Lethbridge and Medicine Hat.	Saskatoon.	Regina.	Brandon.
		Add to Wpg. price.	Add to Wpg. price.	Add to Wpg. price.	Add to Wpg. price.
⅛	$ 6 17	$ 0 25	$ 0 16	$ 0 14	$ 0 09
¼	5 76	0 43	0 28	0 24	0 15
⅜	5 90	0 57	0 37	0 31	0 20
½	7 88	0 85	0 55	0 47	0 30
¾	9 77	1 14	0 73	0 62	0 40
1	14 40	1 68	1 09	0 92	0 59
1¼	19 53	2 29	1 46	1 24	0 79
1½	23 40	2 73	1 75	1 48	0 94
2	31 50	3 68	2 35	1 99	1 27
2½	50 94	5 82	3 73	3 16	2 01
3	66 60	7 62	4 90	4 15	2 64
3½	84 60	9 20	5 85	4 95	3 15
4	99 90	10 89	6 93	5 87	3 74
4½	116 10	12 64	8 12	6 87	4 38
5	135 90	14 81	9 43	7 98	5 08
6	176 40	19 19	12 20	10 32	6 57
7	257 40	23 77	15 13	12 80	8 15
8L	270 00	25 00	16 25	13 75	8 75
9	373 50	34 19	21 91	18 54	11 80
10L	346 50	32 00	20 80	17 60	11 20

GALVANIZED PIPE

⅛	$ 8 64	$ 0 25	$ 0 16	$ 0 14	$ 0 09
¼	8 10	0 43	0 28	0 24	0 15
⅜	8 24	0 57	0 37	0 31	0 20
½	9 59	0 85	0 55	0 47	0 30
¾	12 06	1 14	0 73	0 62	0 40
1	17 82	1 68	1 09	0 92	0 59
1¼	24 12	2 29	1 46	1 24	0 79
1½	28 80	2 73	1 75	1 48	0 94
2	38 84	3 68	2 35	1 99	1 27
2½	63 00	5 82	3 73	3 16	2 01
3	82 80	7 62	4 90	4 15	2 64
3½	103 50	9 20	5 85	4 95	3 15
4	122 40	10 89	6 93	5 87	3 74
4½	144 00	12 64	8 12	6 87	4 38
5	167 40	14 81	9 43	7 98	5 08
6	217 80	19 19	12 20	10 32	6 57
7	.....	23 77	15 13	12 80	8 15
8	.....	25 00	16 25	13 75	8 75

WHOLESALE—Terms in all cases 2 per cent. 30 days, or net 60 days.

CHATHAM TO INVESTIGATE STEAM HEATING COMPANY

Chatham.—The affairs of the Chatham Steam Heating Company will be investigated by a committee from the City Council. Last year this company, which supplies steam heat for the business section of the city and part of the residential district, failed to maintain a continuous supply with the result that there was much inconvenience and suffering during the cold weather. If the company cannot guarantee a continuous service this year the patrons may take over the plant and run it themselves.

Heats Water in a Minute

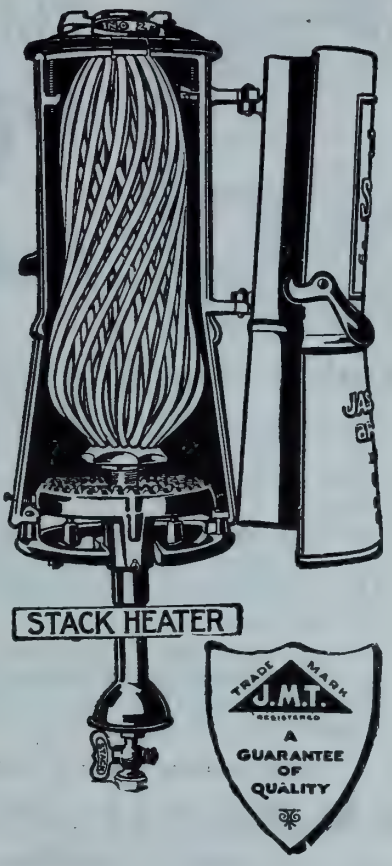
STACK HEATER

Less Gas

The network of small pipes exposed to the hot gas flame will heat water quicker than it would in one large pipe because of the greater heating surface offered. Heats water in a minute; show your prospect. No technical knowledge is necessary to see the advantages of the Stack Heater.

Best for you. Best for your customer.

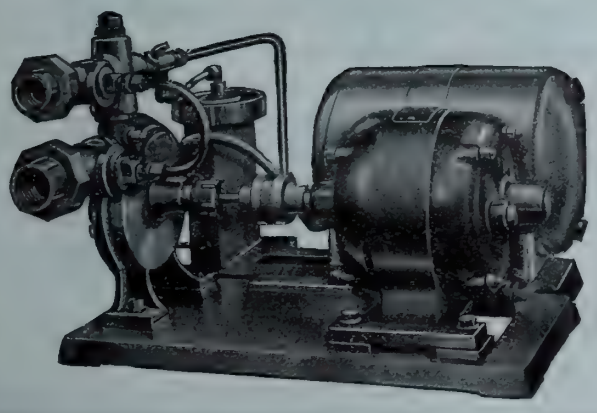
Send for a Stack Heater Display Card



The James Morrison Brass Mfg. Co., Limited

93-97 Adelaide Street West, Toronto, Ontario

The Farmer is Badly in Need of the *Westco* Tankless Water System



See it at Toronto Exhibition

Aggressive salesmen and progressive dealers are always looking for a good selling and profitable line to handle. A splendid place to find good selling lines is the Canadian National Exhibition, Toronto, where almost every modern appliance will be on exhibition. Nowhere in all the grounds will you find an article with greater selling possibilities than the Westco Tankless Water System.

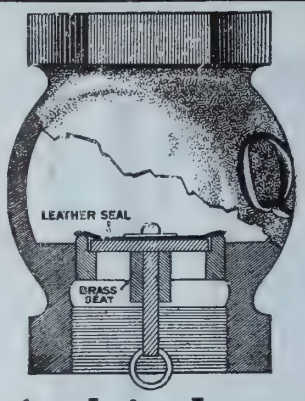
It abounds with selling points, features that are vitally interesting to farmers, suburbanites and rural residents. These are some:

(a) Needs no storage tank; pumps water direct from well to taps.
(b) Low cost to buy, install, maintain and operate.
(c) Entirely automatic; turn tap and pump starts at once; close tap, pump stops.
(d) Runs off farm lighting plant or central station power.
(e) Has no valves, no gears, no belt.
(f) Pump has only one moving part—rarely needs attention.
(g) Pumps from 300 to 500 gallons per hour.
(h) Weighs less than 100 pounds.
(i) Uses less than electric iron while supplying water to four faucets.

There is a fine field for aggressive salesmen selling the Westco System. Can you afford to ignore the possibilities it holds out? You will find it at the west end of the Machinery Hall.

Westco Pumps, Limited

707 Yonge Street, Toronto



This is a "Q" Foot Valve

And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

R. McDOUGALL CO., LTD.
GALT., CANADA

Perfect Circulation Liberal Waterways

Extended Heating Surface

Cored Castings Tapped With Perfect Standard Thread

The excellent design of M & T Coils insures efficient service because they're great hot water producers, made from durable, clean, sound grey iron castings, free from sand or blowholes. Fully guaranteed.

McIntyre & Taylor Limited

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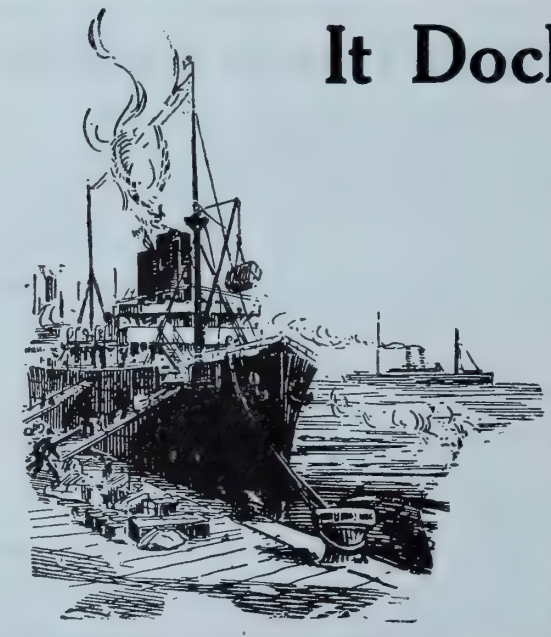
156 Lombaad St. 156 Lombard St.

It Docks At Your Desk



Our service brings to your desk interesting news collected from the newspapers, relating to your business.

Often you plan your affairs on market conditions and new developments, but you could plan much better with full information before you from the whole of Canada and United States.

These newspaper clippings have proven most valuable to business houses, saving time in searching files and often being turned to good account getting orders and contracts through these leads.

As an aggressive firm you would be kept in constant touch with all activities affecting your line of business. You can use this business data on industrial conditions, crop reports, factory expansions, fire losses, insurance news and trade changes. Consult our service man, he can suggest a service that will save you time and solve your problems.

Canadian Press Clipping Service

143-153 University Ave., Toronto

An Industry in Jeopardy

IT seems strange to say that the present exchange situation might mean the death of the shipbuilding industry, that during the war years jumped from a minor place to one of outstanding importance. Yet such is the case. Orders must come from abroad, and are coming from abroad, from France and Italy, from Holland and Scandinavia. Orders, plenty of them, to keep the yards busy for years, but on such ruinous terms that the shipping yards have been unable to accept them. This situation, and the remedies that have been proposed to meet it, are discussed in an article entitled, "A Great Industry in Peril."

Other Points of Interest in This Number:

STORIES

The Little Warrior .....Pelham Grenville Wodehouse
The Parts Men Play .....Arthur Beverley Baxter
The Taming of Pickles .....C. W. Stephens
Jeff Comes Home .....Alan C. Shore
The Worst of Brains .....Nan Moulton

ARTICLES

Pegging the Dollar at Par .....Agnes C. Laut
Saving a Newspaper .....J. L. Rutledge
A Galaxy of Maritime Portraits .....L. R. Joseph
The Wartime Premier Retires .....

Review of Reviews

Here are a few of the gripping informative articles to be found in this department:

"Royalty Has Gone to Work"
"Germany and Her Debt"
"The Truth About Coal Shortage"
"Uncle Sam's Huge Pay Roll"
"Natives of a Strange Island"
"70,000 Criminals in England"
"Duluth to Liverpool in One Bottom"
"The Pope An Unusual Figure"

Over 80,000 Canadian Families Buy

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"CANADA'S NATIONAL MAGAZINE"

JULY 15th ISSUE *Now on Sale At All News Dealers* *20c*

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Wm. B. Scaife & Sons Co., Oakmont, Pa.

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

AIR PRESSURE TANKS
The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
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Wolverine Ltd., Toronto, Ont.

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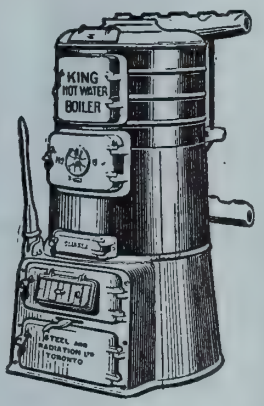

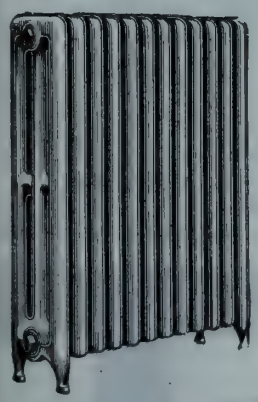

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Manufacturers of Hot Water *and* Steam Boilers *and* Radiators; Fenestra Steel Sash *and* Concrete Reinforcing

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by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Iron Co. Limited
Montreal

The Hotstream HEATS IN A HURRY TRADE MARK REG. WATER HEATER

Kerosene Water Heater

Here is a REAL Kerosene Water Heater.

Works like a gas heater — easy to operate.

WICKLESS burner generates its own gas and throws a clean powerful flame.

This heater is guaranteed to give SATISFACTORY SERVICE.

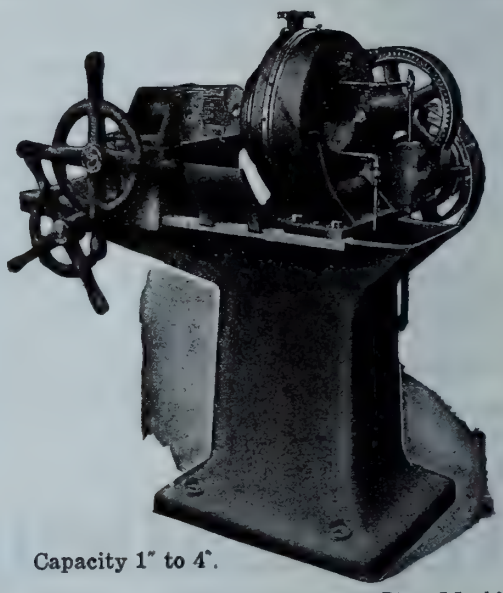
Once sold — stays sold — no come-backs.

The price is low — the season is here—send for descriptive folder to-day.

The Hotstream Heater Company
"Makers of heaters that heat"
Cleveland, Ohio

(We make a complete line of single and double copper coil, cast-iron coil, and sectional gas water heaters.)

W. H. CUNNINGHAM & CO.,
183 Church St., Toronto
Canadian Representatives



Capacity 1" to 4".

The Hall Simplex Improved No. 4 Pipe Machine

Easily operated by unskilled help. An ideal machine for the plumber, the steamfitter or the jobber. Will thread pipe as short as 4½ inches. Let us mail you full information regarding this money saver together with catalog covering our complete line including:

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WIPING SOLDER

Lead Traps and Bends Sheet Lead and Calking Lead

HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG

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Williams, J. H., & Co..... 4
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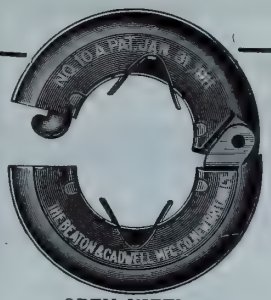

OPEN VIEW
NO. 10-A

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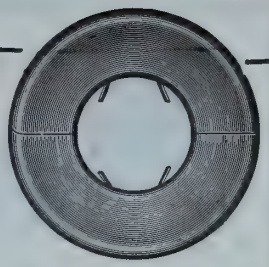

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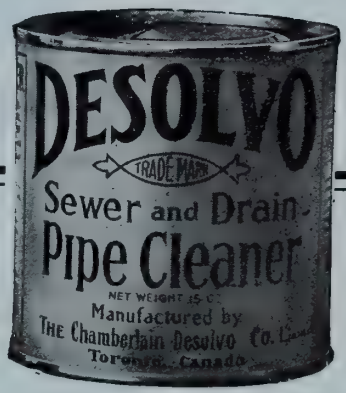

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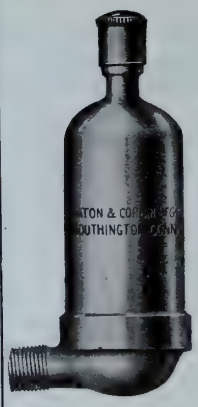

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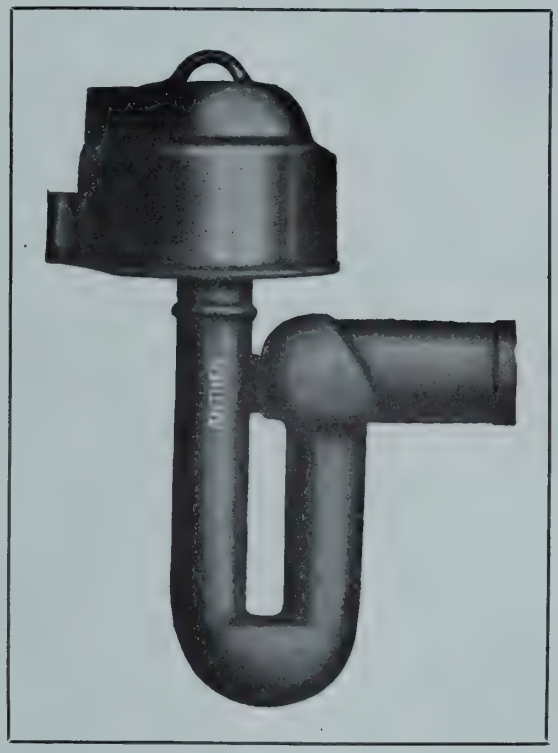

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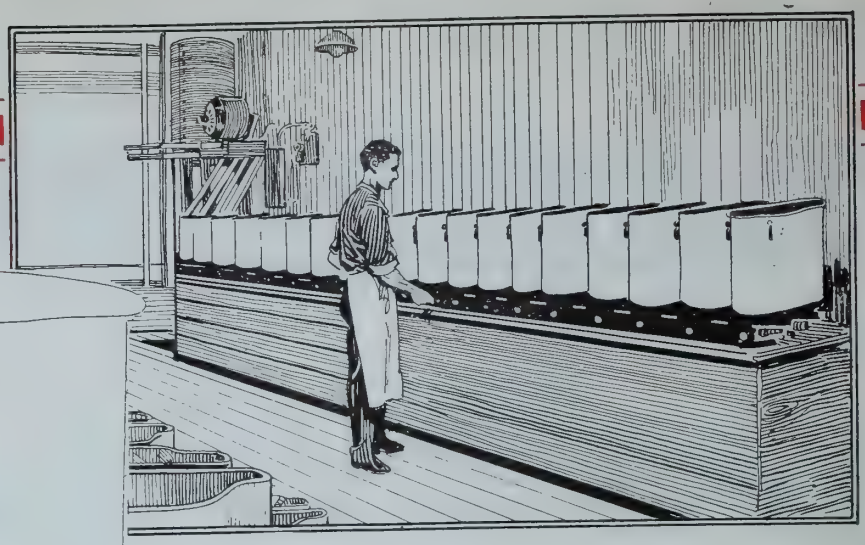

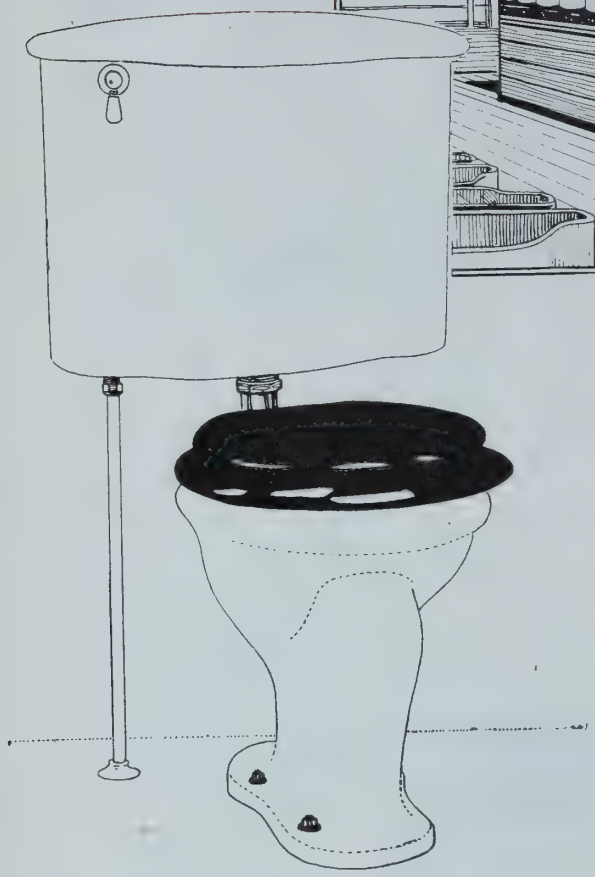

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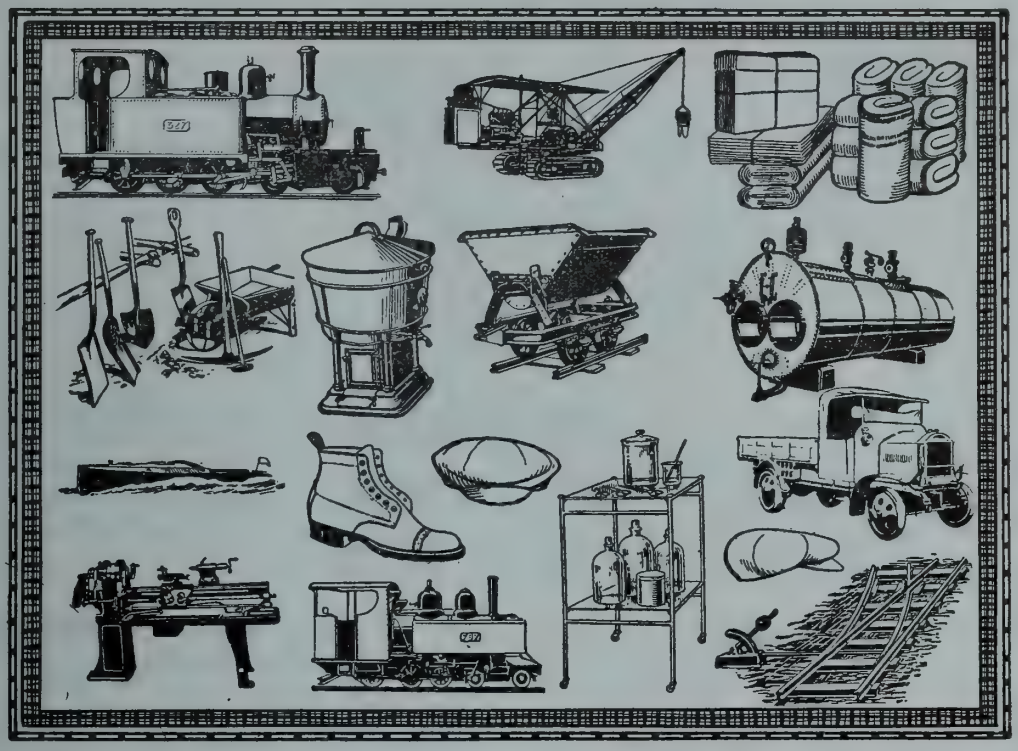

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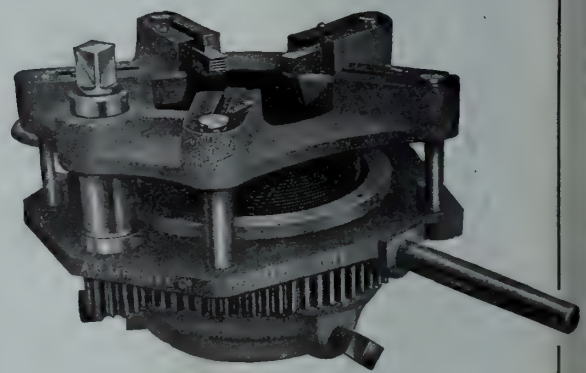

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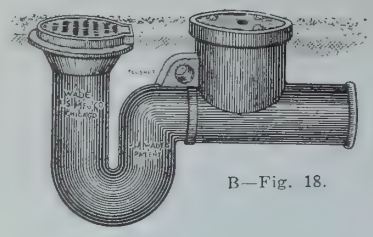

B—Fig. 18.

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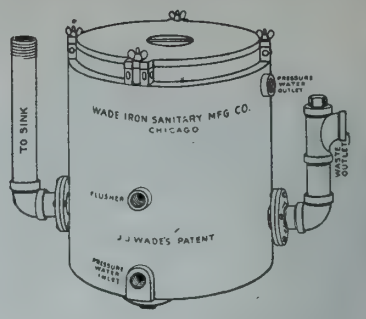

B—Fig. 27.
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

Wade Iron Sanitary Manufacturing Co.

551 W. Fulton St
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B—Fig. 126.
Wade accessible flushing cleanout floor wash and backwater valve combination.

B—Fig. 13.

Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.

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B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

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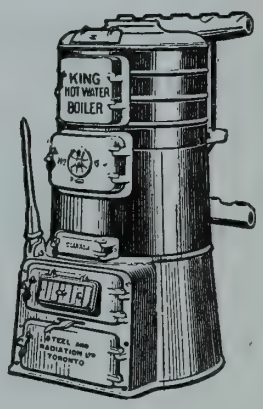

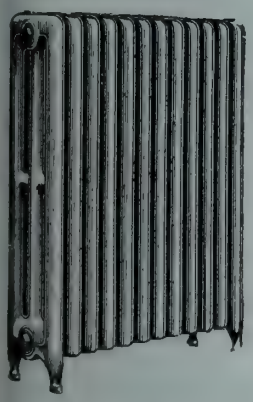

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PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XIV. TORONTO, AUGUST 15, 1920 No. 16

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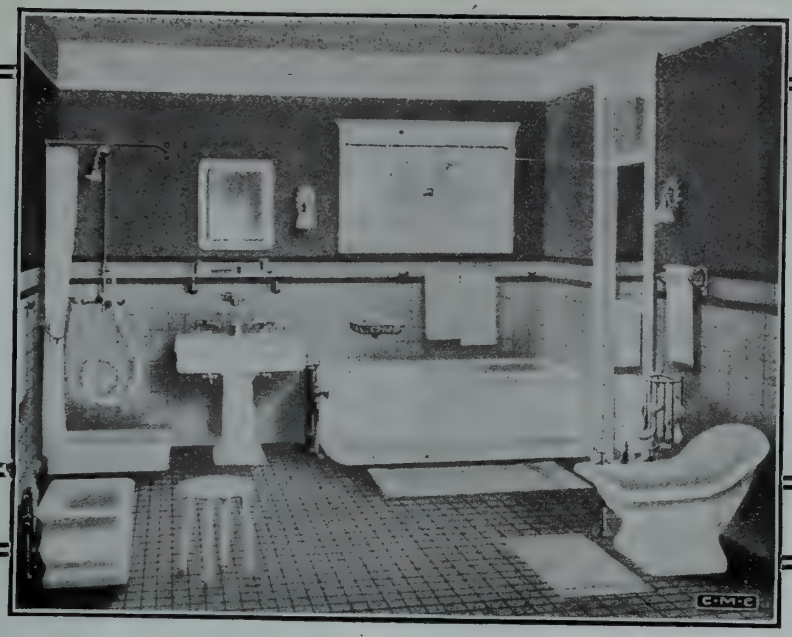

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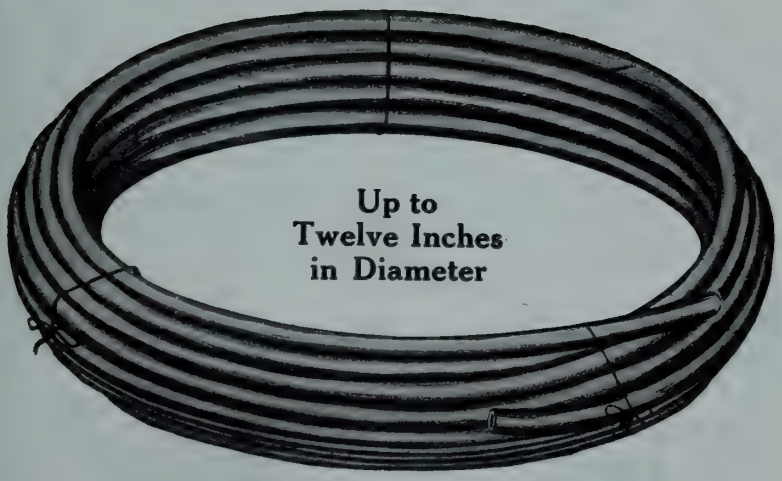

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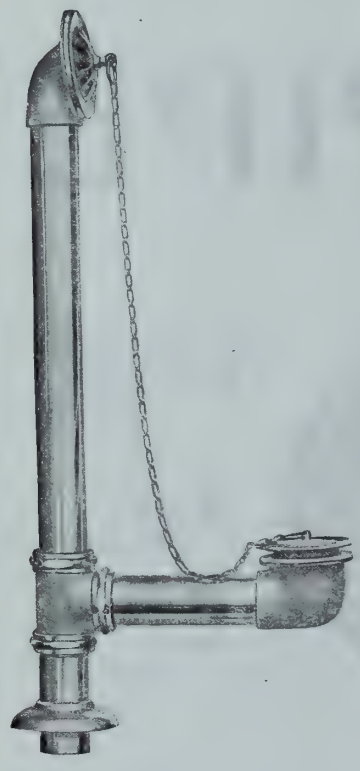

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Published First and Fifteenth of Month

Vol. XIV. TORONTO, AUGUST 15. No. 16

Gauging American Standard Pipe Threads

Being a Summary of the Revised Formulation of the Briggs Standard and the Gauging System Adopted by Different Manufacturers of Pipes, Valves and Fittings

By J. H. RODGERS

STANDARDIZATION is rapidly becoming the keynote of every line of manufacture. Nowhere is this condition more apparent than in mechanical engineering, and yet the indifference shown in some directions regarding the inevitable trend of interchangeability shows a marked deficiency in progressive evolution.

There are probably very few engineering problems of to-day that do not, in some degree, require their ultimate solution. It is only in recent years that any concerted attempt has been made to place the threading of pipes and fittings upon the same footing as other and often less important details of mechanical equipment. There is no reasonable argument why pipe threads should not have the same fixed dimension tolerances that are considered imperative in other forms of threads. The fact that a pipe thread is out to a predetermined taper of ¾ inch to the foot has permeated the belief among many mechanics that accuracy of dimensions and thread lengths is a subject of little consequence. The fallacy is shown in faulty installations, where defective pipe joints have been the source of inconvenience or even more serious trouble.

Prior to 1882 the cutting of pipe threads was a question to be solved by individual manufacturers, and while the nominal shape and size was virtually identical, there was no recognized standard that would insure interchangeability of the parts of different makes of pipes and fittings. However, at this time, Robert Briggs, for several years superintendent of the Pascal Iron Works in Philadelphia, and later as engineering editor of the "Journal of the Franklin Institute," formulated a set of standards, which have since become universally known as the Briggs or American Pipe Thread Standard. In 1886 the manufacturers and the American Society of Mechanical Engineers adopted it in detail, and the master gauges were made. Following the general acceptance of the standard, conferences were held and several additional sizes, certain details of gauging, tolerances, and special applications of the standard, also the formulae and the dimensions were tabulated more completely than was originally done by Mr. Briggs.

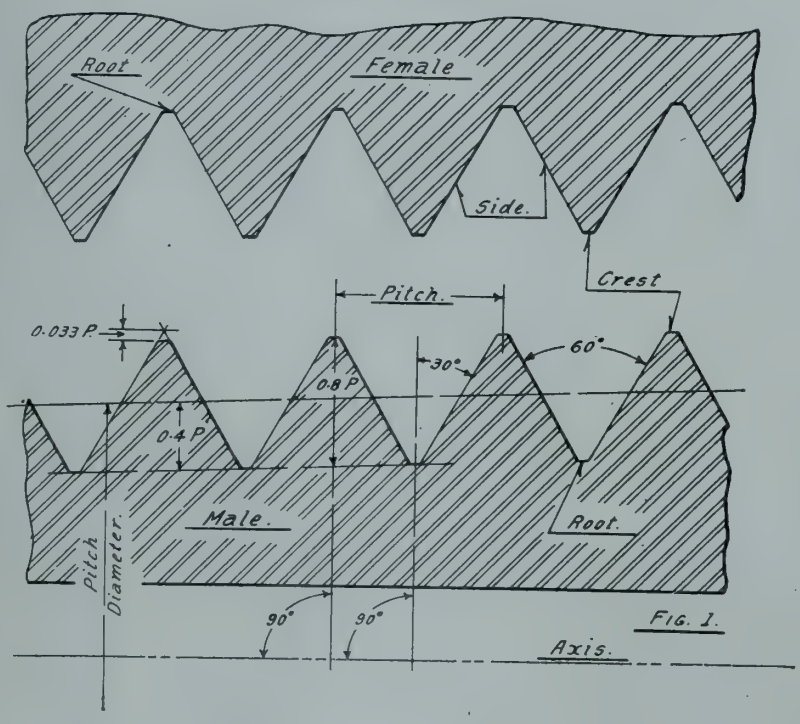


FIG. 1.

The purpose of this article is to give a summary of the details and gauging methods underlying the production of accurate threads of the Briggs standard. The American pipe thread standard establishes the following: Outside diameter of pipe—diameter of male thread—diameter of female thread—profile of thread—length of thread—taper of thread—engagement (by hand) of male and female threads—construction and use of gauges—tolerances—use of taper threads—and the use of straight threads.

To eliminate error that might easily result from a divergence from accurate calculations, the various dimensions of this class of thread are expressed in inches to one-hundred thousandth (0.00001) of an inch, and in millimeters to one-thousandth (0.0001) of a millimeter. For the convenience of those readers who may not be familiar with the metric system of measurement it might be well to state that the relation between the inch and the meter used in calculating the Briggs thread is that established by the United States Government and kept on record in the Bureal of Standards at Washington. This equation is:—

1 meter = 39.37 inches exactly, and is applicable to all practical engineering calculations on this continent. The conversion, or the reciprocal of this equation, expressed in millimeters, would be

$$\frac{1}{39.37} = \frac{1000}{1} = 25.40005 \text{ millimeters}$$

= 1 inch. For work of ordinary character, however, the equation of 25.4 millimeters = 1 inch, is sufficiently accurate.

In the manufacture of pipe the nominal sizes (as known to the trade) vary to some extent from the actual sizes. This is particularly true on the smaller pipes, but on 14 inch and over the sizes as listed are identical with the outside diameter of the pipe.

General Profile

In formulating the original standards, Mr. Briggs was, no doubt, guided by the recognized practice of his day, where the procedure was to measure threads by their crest (outside) and root diameters. The revised formulae, as given here, are derived from the more modern method of gauging threads from the pitch diameters, the straight sides of the thread being less liable to error than the outside diameter. These formulae and the references are shown in Fig. 16. The profile of the thread, which is clearly shown in Fig. 1, give an included angle between the sides of the thread of 60 degrees, the centre line of this angle being at right angle 90 deg.) with the axis of the pipe. This applies to both straight and taper threads. Present practice provides for a truncated or flat crest and root equal to 0.333 p. This gives a depth of thread of 0.8 p. Thus, for a pipe cut with 8 threads per inch, the depth of thread would be 0.8 x .125 x 0.1 or 1-10 of an inch. The flat portion, then, would be 0.033 x .125 = .004 inch.

The original profile, as advocated by Mr. Briggs, provided for a slightly rounded crest and root, but the modified form now in use calls for the flat, as indicated. However, ideal conditions are only possible when cutting threads with new tools, and it will generally be found that commercial threads will appear slightly rounded under close examination. It is largely due to this condition that gauging points are now taken from the sides of the threads to minimize the errors arising from worn tools.

Length of Taper Thread

The length of the taper male thread is determined by the size of the pipe and may be calculated from the formulae:—

$$E = (0.8\ G + 6.8)\ P$$

where E is the length of the paper portion of effective thread—G the outside diameter of the pipe—and P the pitch.

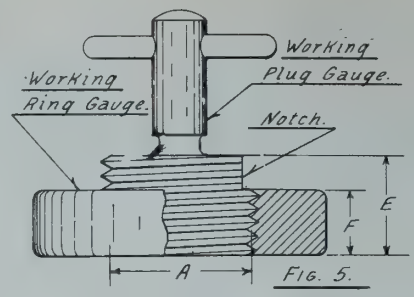


Fig. 5.

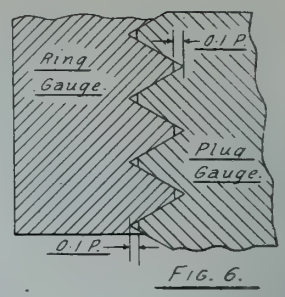


Fig. 6.

For example: Suppose it is desired to find the effective thread length on a 6 inch pipe, so that the thread would conform to the Briggs Standard. The 6 inch here mentioned is the nominal size, so that the outside diameter (G), taken from the table, would be 6.625 inches and the pitch, 0.125 inch. Therefore, from the formula, the effective length would be: $E = (0.8\ G + 6.8)\ P = (0.8 \times 6.625) + 6.8 \times .125 =$ 1.5125 inches, or a little over 12 threads. It might be mentioned here that this formula gives a length that includes two threads that are a little imperfect on the crest, but which has no material effect upon the efficiency of the thread.

Gauging Methods

It was previously stated that the taper of the thread was ¾ inch per foot in the diameter, or the difference of the pitch in the axial length of 16 threads. To insure interchangeability in the similar product of different manufacturers a system of gauging has been adopted for general use, and the basic dimension upon which this gauging is determined is the normal length of engagement (F in Fig. 16) between taper threads when screwed together by hand. This dimension for the various size is indicated in column F of the table.

Reference Gauges

As in all effective gauging systems three sets of gauges are used, namely, master, reference and working. The first two are practically identical in every respect, only that the master gauges, comprising one plug and two checks, are primarily intended for the use of guage and tool manufacturers, and for very accurate reference in checking gauges. The reference gauges are shown in Figs. 2 and 3, and an enlarged view of a section of the thread is shown in Fig. 4. The plug gauge is made to the dimensions given in the table, and likewise includes the gauging notch. One ring gauge, used for external work, has a thickness equal to F, is the same diameter at the small end as the end of the plug gauge, and is flush with the plug gauge at the small end and at the gauging notch when screwed on tight by hand. See Fig 2. For checking the upper end of the plug gauge a ring that is counterbored on the small end for a distance equal to F is used. It is the same diameter at the large end as the large end of the plug gauge. As shown in the enlarged section of the thread, the roots of both plug and ring gauges are grooved to facilitate the finishing of the thread by grinding.

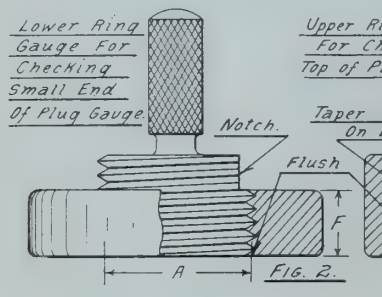


Fig. 2.

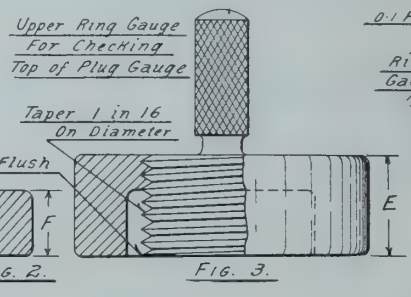


Fig. 3.

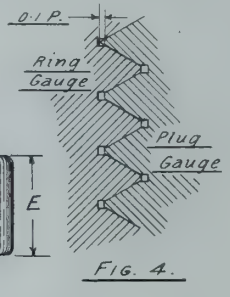


Fig. 4.

Working Gauges

One plug and one ring gauge constitute the working gauges. The plug gauge is made to the dimensions given in the table, and includes the gauging notch. The ring gauge is similar to that used for reference, only the roots are not undercut. This later detail is optional with the manufacturer. The crests are truncated to a depth of 0.1 P. The purpose of this is to avoid inaccuracy in gauging, as commercial cutting of threads is frequently done with dull tools, which may leave the crests slightly imperfect.

When gauging female threads the plug gauge should screw in tight by hand into the fitting or coupling until the notch is flush with the face. When the thread is chamfered, the notch should be flush with the bottom of the

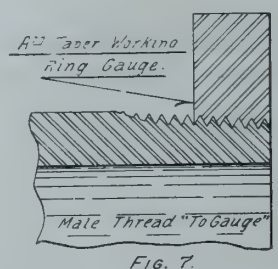


Fig. 7.

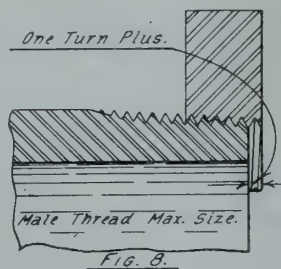


Fig. 8.

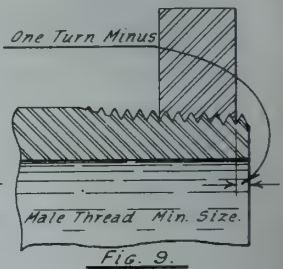
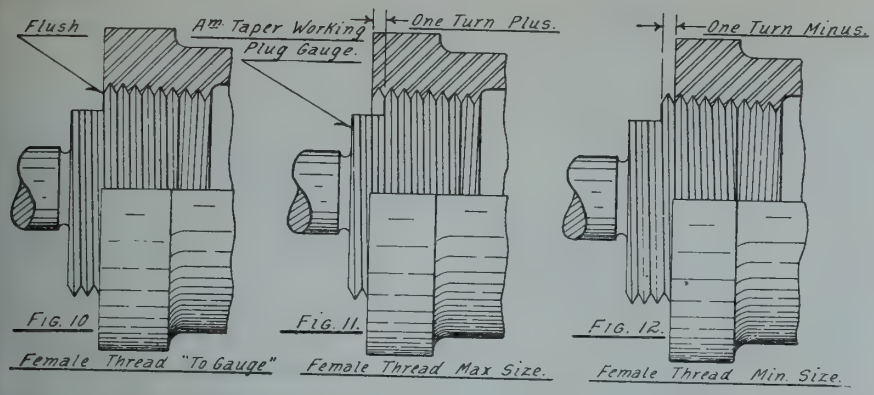


Fig. 9.



chamfer. This method is used either for taper female threads or for straight threaded female couplings, which screw together with taper male threads. See Figs. 10 and 13. For gauging taper male threads the ring gauge should screw tight by hand on the pipe or male thread until the small end of the gauge is flush with the small end of the thread. See Fig. 7.

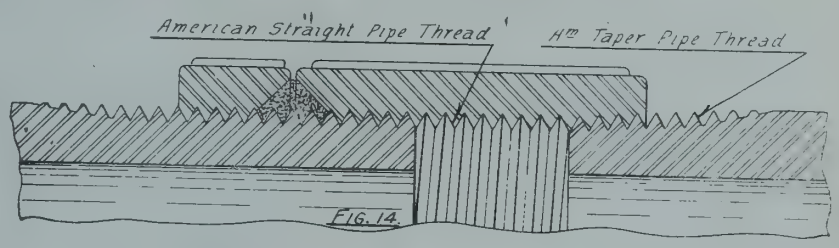
Gauging Tolerance

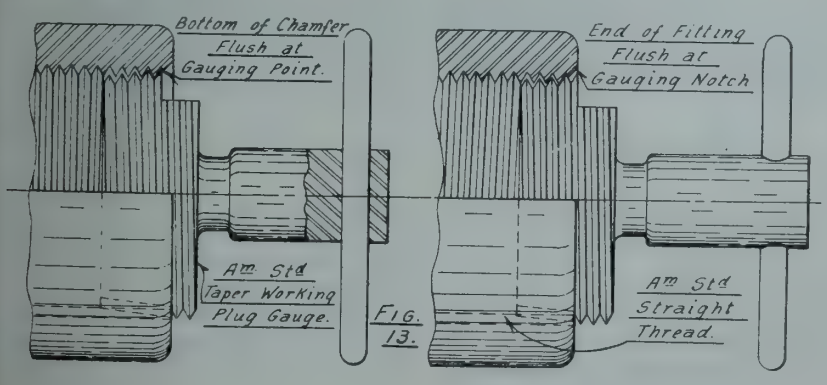
In the manufacture of any article slight variation from basic dimensions are unavoidable. This is likewise true in respect to pipe threads and the different gauges used. The wear of the gauges must also be considered. To fix the allowable variation in gauging pipe threads, certain tolerances have been established. In the making of master gauges all dimensions should necessarily be kept within the narrowest possible limit of error, and each master gauges should be accompanied with a record of all measurements and a statement of the decimal part of a turn it varies (plus or minus) from the basic dimension. In column 1 of the table is given the maximum allowable cumulation of all errors in the thread surface of the reference gauges, expressed in terms of diameter. No point in the thread surface of the gauge should be outside of the zone of tolerance. Column I is used when checking gauges by measurement. If the errors in the gauge are reported in terms of pitch, angle of thread, and diameter, other methods are adopted to determine the cumulation of error.

Column 2 gives the equivalent of column 1, expressed in terms of distance parallel to the axis, and represents the maximum distance which a reference ring gauge of perfect thickness or a reference plug gauge of perfect length from small end to gauging notch may vary from being flush at the gauging notch or at the small end, when referred to basic dimensions. This column is used when checking reference gauges by comparison with a master gauge. The necessary allowance must be made for the error in the master. Column 3 gives the equivalent of column 2, expressed in terms of the decimal part of a turn from the basic dimension. Use of this column is similar to that of column 2. A tolerance of .0002 inches—plus or minus—is allowed on the distance between the gauging notch and the small end of the reference plug gauge, or on the thickness of the reference ring gauge. It is possible for reference plug and ring gauges which come within all of the above tolerances to vary from being flush with each other at the small end, or at the gauging notch, when screwed together tight by hand. The maximum variation which might occur, expressed in terms of distance, is given in column 4 and gauges that come within these limits should be checked by measurement before being rejected.

Column 5 gives a maximum allowable cumulation of all errors in the thread surface of new working gauges, expressed in terms of diameter, and no point in the thread surface should be outside of the zone of tolerance. This column is used when checking gauges by measurement. Column 6 bears the same relation to column 5 that column 2 bears to column 1. Dimensions in column 6 are 16 times those in column 5, owing to the basic taper of 1 in 16, measured on the diameter. Column 6 is used when checking working gauges by comparison with a gauge, the error of which is known. The necessary allowance must be made for this error. Column 7 gives the equivalent of column 6, expressed in terms of the decimal part of a turn from basic dimensions, and is used in checking working gauges as just stated.

A tolerance of .0005 inches—plus or minus—is allowed on the distance between the gauging notch and the small end of the working plug gauge, or on the thickness of the working ring gauge. The same rules apply for working gauge tolerances as those given above for reference gauges. The maximum wear on working gauges must not be more than the equivalent of one-half turn from the basic dimensions. The maximum allowable variation in the commercial product is one turn plus or one turn minus from the gauging notch when using working gauges. See Figs. 8, 9, 11, 12. This is equivalent to a maximum allowable variation of 1½ turns from the basic dimensions, owing to the allowance of one-half turn on the working gauges.




Bottom of Chamfer Flush at Gauging Point.
End of Fitting Flush at Gauging Notch
Am. Std Taper Working Plug Gauge.
Am. Std Straight Thread.
FIG. 13.

Straight Thread Application

In the case of wrought iron or wrought steel couplings, the straight thread is generally used in connection with tapered pipe threads and when used for ordinary pressures make a suitable joint, as they are sufficiently ductile to adjust themselves to the taper male thread when properly screwed together. For high pressure work, only taper male and female fittings should be used. Straight male threads are recognized only for such special applications as long screws for tank nipples, etc. An application of this character is illustrated in Fig. 15.

In gauging the straight thread the working plug gauge is used, allowing for the same tolerance from the notch as for the taper thread. See Fig 13. The straight thread on the pipe enters the coupling freely by hand, the joint being made by a packing material between the locknut and the coupling. For obvious reasons this type of connection

Continued on page 14

T.E.B. Plans Course of Study

A New and Valuable Service Offered to Plumbers of United States Through Trade Extension Bureau Which is to be Emulated in Canada

Editor's Note.

In view of the likelihood of the early establishment in Canada of a Trade Extension Bureau to work in the interests of the plumbing trade in this country, and to be formed along similar lines to the National T. E. B. of the United States, it is interesting to note the developments which are being planned by that organization for the benefit of our friends in the trade in the U.S. A course of study is now being planned, as outlined herewith.

IT is a known fact that in the case of most of us, it is difficult to remember a great deal that we read that would be of genuine value to us. Recognizing this fact, the National Trade Extension Bureau will place at the disposal of every local Association of Master Plumbers and Steam Fitters, a well worked out and comprehensive course of easy study of those matters which are basically of value to the P. & H. contractor, in his efforts to run and manage a profitable business.

The first step in this campaign is in the form of a letter sent to every P. & H. contractor on the mailing list of the National Trade Extension Bureau.

The wording of the letter itself will give a reasonably clear idea of the methods whereby this information spreading campaign will be worked out.

Here follows the letter in full:

Dear Sir:

For you—like all of us—Knowledge is Power! In business it is Money Making Power! Here's an opportunity to add to your Knowledge and Money Making Power. It is gratis, Free!

The National Trade Extension Bureau will soon start a national campaign of Knowledge. It will offer every P. & H. contractor the means of reaching and owning for himself the fruits of a vast field of successful business experience. Take note of that word "Experience." None of it will be theory, it will all be money making, practical, Method.

The foundation of this campaign was laid during the last year by publishing and sending out the 1st, 2nd, 3rd and 4th, "Steps in Business Efficiency for the P. & H. Contractor," and the T. E. B. Monthly Service Bulletin. These have all been filled chock-full of live business building ideas and methods.

In conference with contractors at conventions, and by the visits of many to T. E. B. offices, we have learned that detailed study is needed, for the contractor to secure the full benefits of these things. Most of us have about the same experience in matters of this sort. We read over a lot of good stuff and then fail to get the "meat" out of it because nothing occurs to firmly fix it in our minds. T. E. B. is going to start something that will enable every P. & H. contractor in the country, who is willing to take a reasonable amount of personal interest, to make all of this valuable business information a fixed part of his own knowledge.

You may feel that you don't need this, yourself, and we will grant that you may be right. Yet we know, and you know, too, that your presence and influence at these meetings will have a big effect in getting your competitors and co-workers going right: That no one man ever yet knew all there was to know about any subject as big as the plumbing and heating business: And that the only way to get anything big across is for everybody to take hold and push.

Here's the plan, and it only requires the assistance of the local associations of master plumbers and steam fitters to put it across. The business building information at the command of the T. E. B. will be arranged and subdivided into a series of short, "meaty" lessons or lectures. This series of lessons will be offered to, and placed at the disposal of, every local association in the United States. They will be prepared in language and put together in a shape that any one can understand. They will be supplied with suggestions and material that will make clear every point covered. All necessary printed material will be furnished. Everything will be worked out along practical lines.

At regular periodical "get together" meetings of the local associations these lessons will be made the subject of special study and discussion. It will be made possible for every contractor to have the material for the next lesson in advance of the meeting. The discussion at meetings is bound to bring out additional information of distinctively local value that it would take years to pick up in any other way.

The fellow who tries to crack the stone wall of trade problems with his own little tack hammer can look forward to a lot of long, hard work. On the other hand, with the Sledge Hammer of combined interest it will take only a few blows to break through.

Yours for Bigger and Better Business,

Will Consider Freight and Express Rates Increase

A hearing will be held in Ottawa on August 10th as to the proposed increase in freight rates. On July 9th the Railway Association of Canada, on behalf of member railways filed an application for an increase of 30 per cent. in freight rates. The Transportation Committee of the C. M. A. have decided to retain counsel to assure the proper consideration of the question to the end that any increase allowed must be based on a proper statement of the actual conditions of the different railways. Special consideration will be given to the effect of percentage or horizontal increases on the rate bases, different localities, markets, existing unreasonable and discriminatory rates as well as difference in increase between the East and the West.

The Express Traffic Association of Canada has applied for permission to increase existing rates by 40 per cent.

The Thermal Appliance Company, Inc., of New York, manufacturers of industrial and domestic water heaters, has just issued a very interesting little booklet entitled "Hot Water Comforts in the Home," showing the improvements to be found in their water heater. The booklet should interest plumbers and steamfitters. It is attractively printed in two colors, replete with illustrations and diagrams, featuring their domestic water heater known as the "Taco."

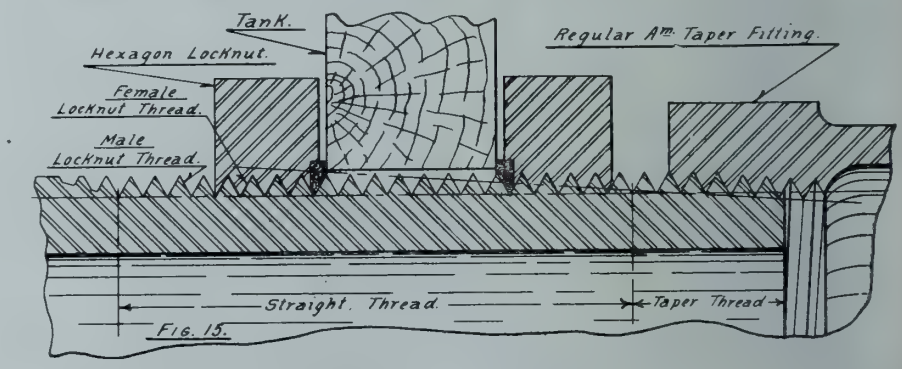


Fig. 15.

STANDARD PIPE THREAD

Continued from page 13

is not recommended, except in cases of necessity. An example of the locknut on a straight thread in conjunction with a standard taper thread is shown in Fig. 15. In this application an American standard taper thread is cut on the end of the pipe after having first cut the male locknut thread.

NOTE.—A companion article to this, covering a discussion on the American and the British standard systems, will appear in an early issue.

Heating and Ventilating

Central Station Heating

Increasing Demand for Conveniences of Central Station Heating System — Big Field for Engineers Who Have Devoted Attention to Such Installations

Written for Sanitary Engineer by N. A. Kearns.
(Continued from last issue)

THE greater part of the article that appeared under this heading in a former issue of the Sanitary Engineer was devoted to a description of Central Station heating systems of the hot-water type. We now wish to direct the reader's attention to central station steam heating systems.

In the former article we started our description with the direct radiating surfaces. In this article we intend to begin at the boiler room, and thence go on to the piping arrangements, etc.

As a usual thing, hot water systems must be provided with two mains: one for the feed piping, and one for the return; whereas with a steam system one main, and that of a comparatively small size, may be used.

A central station steam heating system requires: a central station, where the steam is generated; a system of underground distributing pipes, and the various accessories usually employed in different systems of steam distribution.

Large plants will require the installation of water-tube boilers, mechanical stokers, ash conveyers, coal conveyors and every labor and fuel-saving device that may be procured.

Where exhaust steam is used for heating purposes, it is generally advisable to equip the station with such accessories as feed-water purifiers and heaters, feed pumps, injectors, economizers, and grease separators.

Because the circumstances surrounding different installations differ, as the character of local conditions differ, no hard and fast rules can be formulated for use in the selection of boiler room apparatus.

Capacities

The heating capacity of a central power plant can not be decided upon until a very careful survey is made of every factor contributing to the operation of the plant; such as the varying demand for power; the type of apparatus used; the back-pressure, due to the heating load; and also such other local conditions as may assist or retard the proper working of the plant.

LONDON TO BE PUBLIC HEALTH CENTRE FOR WESTERN ONTARIO

London, Ont.—One of the most important announcements made in some time in connection with the Ontario Department of Public Health is that just made by Dr. H. W. Hill to the effect that London has been made the public health centre for Western Ontario. Dr. Hill returned last Thursday to London after a conference with Dr. J. W. S. McCullough, Provincial Health Officer, Toronto, at which thsi statement was confirmed.

A branch laboratory has been operated at London for some years, but the work is to be extended so that London will be the centre of this district for all public health work. Dr. W. J. McNally, Provincial District Health Officer, will make his headquarters at the institute as a further step in making this an important public health centre.

Under favorable conditions, engines transform thermal energy into dynamic energy to the extent of about 15 per cent. of the steam; thus leaving about 85 per cent. of the thermal energy for heating.

Ordinarily a central plant using exhaust steam for heating will provide enough heat to warm 9,000 cubic feet of space per boiler horse-power. As a general rule the capacity of a central heating plant is made so that it is about 25 per cent. larger than the capacity based on 30 lbs. of steam per 100 square feet of direct radiating surface.

Pressure

The pressure required to drive the steam through the circulating pipes depends on the size and the design of the circulating system. When the buildings to be heated are situated some distance from the station it may be necessary to carry as much as 20 lbs. pressure to assure an adequate circulation.

If the steam is fed to the distributing system by way of a direct boiler connection, the reductions in pressure are made at the points of use by means of reducing valves.

Exhaust steam can not very well be used where the distance of transmission exceeds a mile and a half. In such cases an increased distance of steam travel, together with a higher heating and power efficiency, may be obtained by the use of a vacuum system. Where a vacuum system is installed smaller piping may be used than would be otherwise required, and the water of condensation may be carried over different levels.

The street-main steam pressure is reduced to about 2 lbs. just before it enters the piping system of the building which it is to heat, and the reduction in pressure is made to suit the requirements of the house system.

Street Mains

The mains of most central heating plants are, as a rule, made large enough to provide for future extensions.

In a gravity system, with pressures ranging from 2 to 10 lbs. the pipe sizes may be obtained, for an area in inches, by multiplying the number of square feet of direct radiation by the following factors:

For a main 1000 ft. long..	.00504
For a main 1500 ft. long..	.00510
For a main 600 ft. long..	.00477
For a main 200 ft. long..	.00387

The service pipe sizes may be obtained by multiplying the square feet of radiation by .0012. This is for a pressure of 10 lbs. in the street mains. For a lower pressure the pipe should be increased by two sizes. The service pipe should never be less than 1¼ inches in diameter.

The piping should be anchored at the service connections, and should be fitted with expansion joints or "variators" between each set of anchors.

Expansion Joints

Serious loss of life and property may occur if no proper provision is made for the expansion of steam piping. It is in the neglect of providing proper expansion joints and in the dripping of steam lines where many engineers show their unfitness for installing pipes that must carry steam at high pressure.

In most underground systems of piping, the mains are held rigidly in position by anchors, then between each set of anchors there is installed a device to take up the contraction and expansion of the main. These devices are known

as variators. When the pipes are run in straight lines a double variator is used; where the lines turn, it is necessary to use the single variator.

Sometimes single or double slip joints are employed for the purpose of taking up expansion; but as slip joints require frequent packing, their use is not advisable; too many man-holes would be required in the city streets.

Offsets are mighty poor things to put in underground mains. The expansion and contraction is likely to break the fittings; and furthermore the friction offered by such offsets reduces the efficiency and the capacity of the piping system.

Anchors

Anchorage should be made so that service connections are made at fixed points; otherwise the expansion of the pipes will soon cause a leak to start at such connections.

Anchors should be constructed so as to allow changes from straight lines in direction, or grades in levels. They should prevent the pipe from creeping on sharp grades, and should be so built as to maintain a firm hold on the brick or other material to which they are set.

Conduits

The street mains, unless very large, say, 16 inches or more in diameter, are generally run in wood conduits. Large mains are usually run in brick tunnels. If the buildings are grouped fairly close together, the street mains are placed in a tunnel large enough to provide a passage-way to a man when making repairs. Such a tunnel should be built with brick walls, laid in cement mortar. Weeping tiles should be run about 8 inches below the floor of the tunnel so that it may not become damp through the action of ground water. The tunnel should be made as watertight as may be possible.

When the pipes are run through small conduits it will be necessary to provide "man holes" where valves are located, or where by reason of slip expansion joints repacking is likely to be required.

The "man hole" covers should be strong enough to withstand a weight of 5 tons.

Wood conduits are built of staves of well dried lumber. The staves are 4 inches in thickness and are creosoted before being assembled. They are bound together by galvanized steel wire, wound round and firmly sunk into the wood. The outside of the resulting wood pipe is covered with pitch, sawdust, and asphaltum. The pipe is then lined with tin and is ready for use. After this wooden pipe is put into place it is covered on the outside with three ply of tar paper.

A conduit of vitrified salt-glazed sewer tile is often used. The tile is made in two sections, so that covering may be placed on the pipe running through the tile, before it is finally closed in. At intervals the tile is provided with junction tees, wherein there are set the supports for the heating mains.

All conduits and tunnels, no matter what their material of construction may be, should be provided with sub-drains of weeping tile.

Provision must be made to have dead air spaces all along the length of the duct. This provision may be made at junctions in the duct where connections are made for anchors, valves, etc.

Insulation

The loss of heat in the system of distributing mains, by reason of radiation from the piping, is reduced by providing some good heat insulating material. But even the best insulator will not prevent a certain amount of heat from being wasted in this way. If there were no heat loss in the mains there would be no steam condensed therein, and it would be then unnecessary to provide a drainage system to carry away that condensation.

The amount of heat lost from the street main is nearly constant, and as the heat given off by the radiators is always varying, it is altogether likely that at certain times the condensation taking place in the mains may be much greater than that taking place in the radiation. It is the reduction of the quantity of street-main condensation that we must aim for in designing a system of pipe covering.

Where the tin lined wood casing is used as a conduit for the street mains, a satisfactory insulation is provided by covering the iron pipe with asbestos paper wound around the pipe and held in place with copper wire. The casing being somewhat larger than the iron pipe provides a dead air space of 2 inches to 2½ inches.

Where low pressure pipes are run in vitrified salt-glazed tile, the iron pipe should be packed in granulated cork, coated with infusorial earth. For high pressure work the covering should be of asbestos.

Pipes

Only the best quality of wrought iron should be used in the steam piping of underground distributing systems. Every length should be subjected to a hydraulic-pressure test of 500 lbs. per square inch before being put in place.

The coupling used should be of the long, heavy, recessed type. Connections between special fittings, such as valves, etc., should be made with flange joints and gaskets of soft annealed copper.

Considerable difficulty has been experienced by engineers in providing pipes for the return of condensation. The difficulty comes by reason of the rapid deterioration of the pipes used in the return mains. In fact, the rapid destruction of return pipes has led many engineers to abandon their use. These engineers claim that the cost of repairing such pipes is greater than the amount of money saved by returning the condensation to the boiler-feed. These men endeavour to provide some means of utilizing the condensation., or they allow it to run to the sewer.

Pipes made of wood are sometimes used for the return system. No provision need be made for expansion or contraction and no heat insulator need be placed on the pipe. Wooden pipes must be either kept full of water or kept entirely dry.

Return mains are also made of cast iron; cast iron being well adopted for use where the water of condensation is destructive to wrought iron.

Cast iron pipe when used for such work must be provided with special fittings so that it may be used for this special purpose. The pipe is made in sizes from 2 to 8 inches in diameter and will stand pressure of from 200 to 500 lbs. per square inch.

Laying Mains

In setting mains, a uniform grade must be worked to; so as to secure proper drainage. The pipe should be laid in straight lines between all fixed fittings and expansion joints. Where anchors occur the straight lines may be slightly deviated; but all abrupt changes in direction must be made with angle joints and flanged fittings.

All pockets in the line must be freed from the water of condensation by way of automatic traps discharging into the sewer.

Valves

For this class of work, flanged packless gate valves can be recommended. The type that has a seat on the valve stem will prevent steam from entering the valve body when the valve is closed, and when open will prevent steam from escaping by way of the gland. The stems of the valve should be of such a size as will permit the use of a socket wrench of uniform size for all valves. The valves are, as a rule, bolted to flanged crosses. A cross is set at each street corner, and within a manhole where it is readily accessible. Crosses are provided with eccentric tappings where the mains are to be reduced in size.

Service Connections

As we have already written, service conections from street mains to buildings are made at fixed points in the street main.

The fittings in the street mains where service connections are to be set are made so that the service pipe can be taken off the top or out of the side or bottom of the main. The bottom connections are used where it is desired to drain the street mains by way of the house service pipe. However, it is usually the custom to take the service pipe out of the top of the main.

Where a house service may be required at a later time, capped nipples are run through the basement walls so that the desired connection may be made without disturbing the main line.

House Piping

The service pipe from the street main passes to just inside of the basement wall; it there connects with a larger pipe, which pipe serves to separate the water of condensation from the steam. The water separated thus finds its way to a return trap and is discharged into a low-pressure return main.

The large pipe, or "separator," is connected to the house piping; and in the connection there is placed the pressure reducing valve with a by-pass and two gate valves. The gate valves and the by-pass are provided so that the pressure reducing valve may be repaired without closing down the house heating system. A high pressure steam gauge is set on the high pressure side of the reducing valve: a low pressure gauge is set on the house side. A relief pipe is arranged to drip the condensation out of the house mains. This relief is connected to the low pressure return, and is in the form of a syphon. The syphon is to be made deep enough to offset any drop in the pressure of the heating system.

It is frequently necessary to use reducing valves to vary the pressure carried on the heating systems of several different buildings. If the water of condensation is to be returned to the central heating plant, it will be necessary to use a steam trap by way of which the condensation from the heating system may drain to the main return—the main return being connected to a closed receiving tank. If the pressure in some of the buildings is greater than that in others, it will be necessary to use traps on the returns from the buildings in which the lower pressures are carried.

Economizing Coils

Where no system of return piping is installed, the condensation from the radiators in each building is passed over the coil and takes up the heat that otherwise would be wasted. The air warmed by the economizing coil is used for the purpose of ventilation, and in this way effects a material saving in the quantity of steam required to heat and ventilate the building.

Not only does the economizing coil effect a saving in the amount of steam used, but it also reduces the temperature on condensation to a point where it can be discharged into the service without doing damage to that drainage system. Water condensation at a temperature of more than 120 degrees should never be allowed to drain to a sewer. We hardly need to say that the condensation should never be discharged into the house drainage system, because all engineers know how rapidly hot vapour will ruin a plumbing system.

Economizing coils may be built up of pipe; but the modern practice is generally to use indirect radiators, of the extended surface type.

If a considerable quantity of air is to be heated, it may be necessary to provide some indirect radiation in addition to that of the economizer. In such a case, the additional radiating surface should be fed with steam.

The condensation from all radiators in the house, should be drained to a trap. The trap discharges the condensation into the economizers. From the economizers the cooled condensation passes on to the metre which registers the quantity of water discharged by the heating system to the sewer.

The size of the economizing coil depends on how much radiation is to be drained, and on the temperature of the water which is to be discharged to the sewer. Taking these two factors as a basis for an estimate it will be necessary for the engineer to proportion the economizing surfaces according to their efficiency when air of certain temperature and at a certain velocity is passing over them. For a rough estimate of the quantity of surface required we may allow an area of 8 square feet for every square foot of direct radiation—or its equivalent—served. This is for a temperature of 120 degrees in the water drained to the sewer.

Charges

Now we come to a point full of interest to the man who has to pay for the heating. It is full of interest because it gives him some idea of the conditions controlling the price he is charged for the heating of his house.

Some central station heating companies charge a flat rate for heating, but have not found it to be a method satisfactory to all of their customers. Charges made in such a way are never equitable. A customer may use a great deal of steam in heating a very small building. He may be so hungry for fresh air that he will keep the windows of his house open in all kinds of weather; and at the same time, be such an enthusiast for heat that he never turns off a radiator.

The system of making a charge for each house, as based on the individual meter reading, is the fairest one that can be devised. When a charge is made in this way, the man who is charged knows that he is not paying for the extravagance of some other customer.

District heating companies usually have a sliding scale of rates; so that customers who require a great deal of heat for very large buildings are charged comparatively less for the service than are those whose requirements are comparatively light.

Basing the charges on metre readings, heating companies usually consider 1,000 lbs. of condensation as being equivalent to the cost of one-tenth of a ton of anthracite coal. Of course, the circumstances of design and operation of the system may make it necessary to charge a higher price than this, or on the other hand, a price somewhat less.

Much remains to be taken up regarding the details of design for systems like those described in this and in the preceding article; but we cannot now do more than promise to provide the necessary data required for the designing of these systems, while we progress through this series of articles.

The principle involved in designing such large plants as those required for central station systems differ only in degree from those required in smaller heating plants; so the reader will understand that the data he may receive in the future articles of this series will be of use to him in the designing of the largest as well as of the smallest plants.

CANADA'S ELECTRICAL-APPARATUS INDUSTRY

Figures of the industrial census taken by the Canadian Board of Statistics show a total of 68 plants engaged in the manufacture of electrical goods of various kinds, 42 of them being located in Ontario, 13 in Quebec, 7 in Manitoba, 3 in British Columbia, 2 in Alberta, and 1 in Saskatchewan. These 68 plants represent a total capital investment of $43,285,405—Ontario leading with $26,426,129, Quebec following with $16,525,454, Manitoba being credited with $253,026, British Columbia with $42,881, Alberta with $19,736, and Saskatchewan with $18,179. Of the total capital $10,635,572 was invested in land, buildings, and fixtures, $6,518,132 in mchinery and tools, $17,071,528 in materials, stocks in process, finished products, fuel and miscellaneous supplies on hand, and $9,059,173 represented working capital. In 1918 the industry had 6,595 male and 2,268 female employees, to whom it paid $8,456,705 in salaries and wages. The selling value at the works of all articles produced during the year is shown by the census returns to have been:—

Products—	Selling value at works
Dynamos, generators, and converters	$1,503,443
Transformers	2,291,874
Switchboards, panel boards, and cabinets	990,898
Motors of all kinds	2,727,673
Storage batteries	212,624
Primary batteries	1,397.635
Incandescent lamps	1,924,745
Sockets, receptacles, bases, etc.	415,855
Electric light fixtures of all kinds	311,844
Telegraph apparatus	71,230
Telephone transmitters	50,000
Telephone receivers	95,000
Telephone interior systems	444,000
Telephone central switchboards	750,000
Telephone private exchange switchboards	110,000
Insulated wires and cables	5,154,984
Electrical machinery of all kinds	1,738,085
Carbons	1,362,666
All other	8,492,843
Total selling value	$30,045,399

Now Necessary to Hold Down Credit Business

Present Conditions Make Necessary the Curtailing of Credit and the Cleaning Up of Long Standing Accounts to Provide Free Capital, So Cash Discounts Can be Taken and Interest Charges Against Capital be Decreased

HIGH prices of commodities and the necessity of carrying a complete and well assorted stock makes it more necessary than ever before to have plenty of "free capital" available, rather than to have small funds on hand and large stocks represening a big investment on which some speculating may be done before it is moved. Thus it behooves the merchant to watch his credit accounts very closely and clear as many questionable credit accounts off his books as possible in order to give him capital with which to take his cash discounts when buying and to cut down his interest charges against capital. Some 25 suggestions are outlined herewith to help the merchant hold down credit sales and to get customers to pay up. These are taken from "Electrical Merchandising," and are as follows:

Poor collections and a disproportionate volume of credit sales usually indicate a poor collection policy or none at all. A carefully thought out policy is as necessary in merchandising as mortar is in making a brick wall. Determine a policy fair to yourself and fair to your trade. Acquaint your sales-people with your policy and see that your customers also know it. Then enforce it. This is fundamental. No special "stunt" for getting your money collected can compare in value with a sound policy firmly and fairly enforced. Fast and loose collection methods result in fast and loose profits. Leave out the mortar and the wall falls.

* * *

SELL FOR CASH WHENEVER POSSIBLE

You will have less trouble in getting customers to pay up if you carry fewer customers' charge accounts. Therefore sell for cash whenever it is possible to do so. Of course, do not lose the sale by refusing credit if you know the credit can be fairly and honestly extended. Credit is often extended on small purchases when a tactful word or two would turn it into a cash sale. Have all your salespeople make your confidential instruction their silent slogan, " We sell for cash whenever possible."

* * *

EXTRA MONEY FOR YOUR SALESMEN

Let your store salesmen and house-to-house salespeople earn an extra dollar or two by making a collection now and then during their business hours as they have opportunity or during their off-duty hours. Try this idea out any time, but it ought to work well at the beginning and middle of the month—the time when "the ghost" walks for many people, meaning the pay envelope, of course.

* * *

HOOK UP WITH THE METER MAN

Why not get in touch with the commercial manager of your local central station and arrange to have the meter man present your bill to your customer and make the collection when he calls monthly to read the customer's meter? This plan should work out well, especially in the smaller cities and towns. Have the meter man report directly to you and pay him a small commission on each account settled in full. That's better than not getting a settlement. Choose your accounts carefully for this method of collection and instruct the meter man carefully. If dealers' stores offer good advantages for collecting central station bills monthly, why is not the meter man a good person to help collect the contractor's or dealer's bill, when that method is expedient?

* * *

CHARGE ACCOUNT PRICES

One of the most successful hardware stores in Connecticut—and one that is selling electrical goods — marks its "charge account price" on all of its price tags. And that is the only price mark appearing on the tag. Why? Because in former days many of its customers insisted on carrying charge accounts and on paying up about when they felt like it. The interest that the uncollected money could have earned almost exceeded the profits. Hence the change to the "charge account price." Now when a customer buys he is surprised pleasantly to find that he gets a discount for cash on the spot, and learns that he must pay the larger amount if he wishes the purchase to go on an account and make it necessary for the proprietor to collect later. That is an excellent way to teach the public the cost of collections.

* * *

SEND YOUR INSPECTION MAN

Don't hire a professional, free-lance "bill collector." Train one of your salespeople to do a better job of it. Send him around ostensibly to inspect the appliances that you have sold, to make sure that they are in good working condition and are being used correctly. Let him make the collection quietly before he leaves.

* * *

USE THE TRADE ACCEPTANCE

Get acquainted with the trade acceptance, if you have not already done so. Work out your own method of using it. Then use it. Get your customer to sign an acceptance covering the amount that he owes you. You can then discount the acceptance at the bank and get your money. One St. Louis electrical house has been using the trade acceptance for several years. Ask your banker about it. He can tell you how to use the acceptance, at least he ought to be able to do so if he is an up-to-date banker.

* * *

SEND ANOTHER APPLIANCE

Surprise your debtor by sending another appliance to her home. Let the salesman who delivers it make the demonstration and leave the appliance for a short trial. Have him call again in a day or two and complete the sale, if possible. He should sell for cash if he can, but he should first of all collect the balance due on the previous bill.

* * *

OPEN FOR COLLECTIONS ONLY

If your business happens to be located in a small city or town you know quite well how prone the population is to go promenading on Saturday night or on band concert night. It may be that you and the other business men have agreed to close every night at six during the summer. Perhaps all of you close up

Continued on page 20

REVENUE RULINGS

Mr. J. D. Fox, collector of Inland Revenue at Montreal, reports the following recent rulings by the department, respecting ceiling fixtures.

Semi-indirect bowl fixtures:

Chandeliers are defined as ceiling fixtures with two or more lights and the tax of 10 per cent. is applicable on all chandeliers in excess of $12.

Semi-indirect bowl fixtures, domes, etc., are not classed as chandeliers and are subject to the tax of 10 per cent. when sold in excess of $3.

Gas and electric light fixtures, include newel post lights, wall brackets and other electric lighting fixtures.

Lighting glassware, such as semi-indirect lighting fixtures, is subject to the tax of 10 per cent.

As regards the material used in semi-indirect lighting fixtures, that might be purchased separately and assembled by the retailer, the retailer in this case would become the manufacturer and his sales would be subject to the tax of 1 per cent. as well as the sales tax of 2 per cent.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

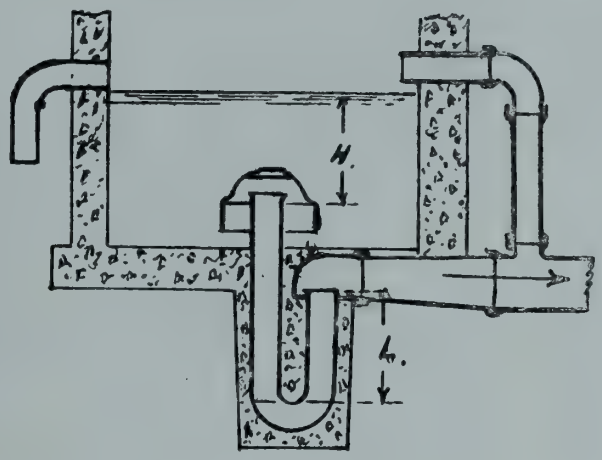


FIG. 20.

Article No. 14 of the Series—Illustration No. 20

(Continued from last issue)

Fig. 20 shows an illustration of a small Millar syphon: The liquid enters the syphon chamber from the liquefying tank and rises above the lower edge of the bell, imprisoning the air within the syphon and as the water rises higher in the tank, the confined air is put under greater pressure by the water until the pressure becomes great enough to force the liquid out of the longer leg into the pipe. The air escapes around the lower bend and through the rapid movement of the air, the water contained in the chamber is rapidly discharged or syphoned into the pipes feeding the filtration area.

When the distance H and L are the same, the water in the tank is in perfect equilibrium and by the addition of a small amount of water this equilibrium is upset so that the air compressed expands at the flattened bend into the sewer, comes back into the tank through the overflow or ventilation pipe, the water in the bell suddenly rises, the air being released and the syphon set into action (all the compressed air being previously expelled), the water in the chamber is rapidly drawn down and discharged into the sewer.

When the water reaches the bottom of the bell, air is introduced, breaking the vacuum and complete circulation is established, the syphon becoming again completely air locked and ready for the next discharging operation.

This automatic syphon, if properly designed, and set, is very reliable and having no moving parts, very seldom gets out of order and is very durable.

for Wednesday afternoon, and the weekly band concert comes on Wednesday night. Why not advertise that you will be open for one hour on that evening —"for collections only." On such a night the crowd is likely to contain many of your customers. It should be easy for one to slip in and pay up.

* * *

TELEPHONE TO HIM

It will save time, money and effort to use the telephone now and then. If he owes you a bill, or if she does, call up and have a friendly chat about the matter. Be careful how you do it. Make sure that nobody is listening on the line. Don't threaten. Talk briefly. Make the man who owes you pay you a smile by wire, at least, and get his promise for an early settlement.

* * *

BEWARE OF "POOR PAYS"

In every community there are people who are commonly known as "poor pays." Beware of these. Sell to them, knowing their reputation, and you have only yourself to thank, if you add to your credit sales and to your collection difficulties. Sell to them, by all means, but sell for cash. You then do yourself a good turn and you certainly help them to improve their own credit standing in the community.

* * *

SELL TIME-PAYMENT CONTRACTS TO THE BANKER

Sometimes a banker can be persuaded to take over for you the time-payment leases of your customers, thus permitting you to get in your money less a reasonable discount. The banker is not likely to do this unless he is sure that leases are absolutely good. He is more likely to favor the trade acceptance. Many leases require the use of the acceptance. Frequently, however, dealers and contractors have made arrangements whereby the local banker takes over the contracts.

* * *

COLLECTION DAY

When a customer opens up an account tell her that the last day of the month (or some other day) is your "collection day," on which you make collections of outstanding balances from house to house, merely as a way of making it easy for the woman in the home (or the man) to pay up any outstanding balance or an installment on a time-payment purchase. Some folks will avoid this call of your collector by paying up in advance. Other customers will wait until he calls.

* * *

SHALL I GO TO LAW?

Sooner or later in the effort to collect what looks like a lost "balance due" there comes a time when the dealer asks himself, "Shall I go to law in this matter?" Of course, there are times when this must be done, but be sure that you have arrived at that time. Many a creditor has lost the "balance due" and also the good will of a slow debtor by threatening a suit at law too early in the game. Just about the time the debtor looks for the usual "recourse to law," surprise him with a friendly little word showing your confidence in him and in his ability to pay up. Often this little note of confidence is just the thing needed to bring in the money.

* * *

REPAIRS FREE

Appliances will get out of repair sometimes, usually through some fault of the customer. If a bill has been outstanding for a long time, perhaps the appliance is out of repair. Find out. Offer to make the repairs free, if the account is closed.

* * *

MAKE HIM RECOGNIZE YOUR BUSINESS ABILITY

"I am badly in need of the money that you owe me," is a sentence seen many times in poor collection letters. It ought to be killed and buried. Tell your debtor that you are having difficulty in collecting your money and he will be convinced that in that respect you are just as poor a business man as he is in not paying up. He probably reasons rightly that if you have a heavy amount tied up in unpaid balances due from your customers you also probably have a number of creditors who are pushing you. Convince him that you are an able business man and show him that you expect him to be the same.

* * *

WRITE HIM A LETTER

Write just as you would talk to him, if you were face to face and both of you in a smiling mood. Forget the "beg to advise" and the "unless we receive your check by return mail" and the "we shall be forced to resort" and the "must act without delay." All of these threadbare phrases are known to every ten-cent debtor in the land. He recognizes them as the earmarks of a weak and carelessly planned collection system. If you use a form letter system in handling your collections, be sure that the letters are out of the ordinary run of such letters and that they carry a personal note.

* * *

OFFER A DISCOUNT

When you are faced with an out-and-out loss of the entire balance due and when you have practically given up hope of collecting any portion of what is due, offer an attractive discount for settlement at once. Better get even a small part than none at all. Don't use this method except as a last resort.

* * *

SCALE OF DISCOUNTS

Dealers have sometimes aided their collections by offering a set of discounts, each discount for a short period, and the discount diminishing as the time lengthens before payment is made.

* * *

HAVE HIS BANKER SPEAK TO HIM

If a man owes you a goodly sum of money and he has repeatedly refused settlement, and if your banker happens to be his banker also, perhaps a careful word spoken by the banker at the right time will bring in the money.

* * *

GET IT ON DEMONSTRATION DAY

Some time when you are planning to hold a special demonstration in your store mail your slow-pay customer a personal letter announcing the demonstration and inviting her to come. Don't mention the "balance due." The customer will expect you to do it and will be pleasantly surprised at its absence. An invitation instead of a "dun" will often prove the better bait.

* * *

POOL COLLECTIONS.

Perhaps your customer who does not pay his bill also owes money to other electrical contractors. If you have reason to think so, get in touch with the other creditors — and all of you send him a collective bill. Against your

Continued on page 27

Close Watch to Be Kept on Merchants in Recording Book

One of those terribly Governmental looking books—at least a yard wide—has been received by the Dominion's collectors of inland revenue from Ottawa for recording the payments of luxury and sales taxes. In it is being entered the name of every retailer, wholesaler, manufacturer and jobber, and each one is being given a number. It is the intention of the collector to open an account with every firm or person affected by the new taxes and thus keep "tab" on them.

The number of persons who call at these offices to ask questions and take away information continues to be greater than those who come to pay the taxes. Nevertheless the Toronto officials are satisfied that Toronto merchants are doing well under the circumstances. A number of extra clerks have taken their places behind the collection counter, but there was not quite as much work for them as was contemplated, the rush of last week having apparently fallen off.

This is explained by the fact that most of the first week's collections came from the smaller dealers, who had little difficulty in filling out their returns. The larger firms, it is conceded, required more time for making out their first returns, particularly since it means committing themselves as to the extent of their business.

Much time has been wasted, insofar as the local officials are concerned, by hundreds of people insisting on arguing the unfairness of some of the taxes, and it has been one of the biggest problems of the staff to stave off such arguments.

THE QUESTION BOX

Connections From Kitchen Range Boiler to Range, Furnace and Jacket Heater

Question.—Would you be kind enough to tell me what in your opinion would make the best connection between the following:

I have to heat a 52 gallon range boiler in kitchen with kitchen range and connect same with hot water furnace and jacket heater in your basement.

Yours faithfully,
A Subscriber.

Answer:—The accompanying drawing shows a suggested lay-out for the connections of tank, water-back, jacket-heater and coil in the furnace.

While this drawing shows in detail how the work may be installed, the circumstances of actual conditions may make necessary some deviations from the lay-out; so for this reason we will endeavor to show why the drawing is detailed as it is.

First we shall take up the matter of the connection to the water-back in the range. We note that the cold water connection is taken out of the tank in such a way that a trap is formed by the pipe loop from tank to water-back. This trap is provided for the purpose of checking the return of warm water from the water-back to the cold water connection.

Draw-off cock, must be set so that the low points in the piping may be drained as occasion demands.

The reason that the hot-water pipe, connecting the tank and the water-back, is connected to the side opening of the tank is this: In the event of the stop-cock and waste on the cold-water pipe being turned off, there will be no danger of the water in the tank being syphoned to a point below the range connections. If the flow pipe from the water-back should be connected to the pipe in the top of the tank, then, in the event of the water being syphoned to a point below the vent hole of the water pipe within the boiler, the upper part of the flow pipe would be dry, and the result would be the formation of steam within the water-back.

The small difference in the height of the circulating head of the water-back connections also serves to retard the upward flow of hot water in the tank, and in this way assists the direct circulation of the water from the remaining heaters to the tank.

Now we refer to the cold-water pipe leading from the hot-water tank to the theatres in the basement. We note that this connection is made by means of a tee, placed between the tank and the loop to the kitchen range. The connection is made in this way to prevent the range loop from short circuiting the downward cold water supply.

It will be noted that both the cold water connection to the jacket-heater and to the coil in the basement are trapped by pipe loops.

The pipe sizes are shown on the drawing. The pipes are reduced in size, as shown, to provide for an equal circulation of water throughout the system.

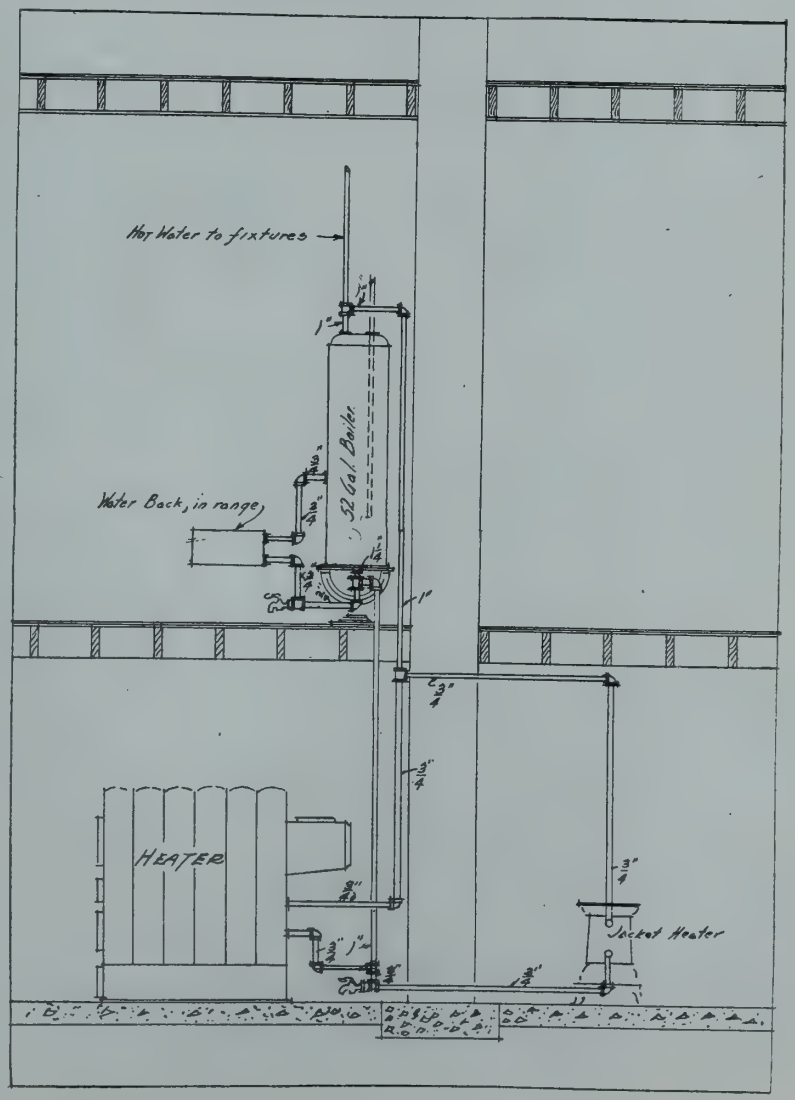
When connecting several heaters to one tank, or several tanks to one heater, the fitter will often find that it is difficult to maintain an equal circulation all over the system. This is generally found to be the case when one part of the system gets a start on some other part. However, by arranging the pipe sizes in the proportions shown by the drawing there is little danger of a resulting difficulty of this kind.

Sometimes to prevent back circuiting, swing check valves are placed in the cold water pipes leading to each connection; but we do not recommend the use of such, and if the fitter is careful to provide pipe loop traps he will find no occasion to use the swing checks.

The water-back, the coil, or the jacket heater may be run independent of the balance of the system or they may be all run at the same time.

No shut-off cocks should be placed between the tank and any heater. If shut-off cocks are so placed there is the danger of some one cock being left closed when the heater is fired. The result may be a violent explosion of the heater.

It appears to us that a rather small tank is indicated for the great amount of heating surface shown. No doubt the water will be drawn from the tank at frequent intervals; if it is not, there is likely to be considerable boiling, snapping, and surging as a result of a great deal of heating surface and a relatively small tank.



EDITORIAL COMMENT

DEVELOP EXISTING SOURCES

THE paint people look at the building statistics for the past six months and wonder where all the paint is being used—not much building going on, yet the paint business has been abnormal. Here's the reason.

Take a walk along almost any street in any town or city to-day and note the number of freshly painted houses. The house that's not painted is the exception, not the rule. This is the result of the desire to brighten up, to progress, which on account of the high cost of building materials does not take the form of new buildings erected.

The same applies to plumbing. There's many a home in your neighborhood which is in need of new plumbing and which if you go after it could be crystallized into profitable business. There's many a home which could be made more liveable and home-like by the installation of modern plumbing, by the addition of another bathroom, by the installation of a basement toilet for the convenience of the small children who, during the inclement fall and winter weather, track through the house on the way to the second floor toilet.

Size up the homes in your district and get acquainted with the needs of the owners. Stir up the desire for more modern plumbing. Show them the advantages of two baths and toilets, the need for the basement toilet, the labor-saving effected by laundry tubs. In short, go after business which does not come to you. Be the live-wire merchant plumber in your district.

GETTING BACK TO NORMAL

ONE of the most encouraging signs that have been seen of late is contained in the replies of 23 manufacturers to a questionnaire recently sent out by the Merchants' Association of New York. These replies show that slowly but steadily the output of labor is reaching a higher percentage of its possible maximum, and that, man for man, the worker is working more steadily, and producing more during his working time, than he has been doing for some time past. If this tendency persists, and a higher plane of efficiency ensues and remains, then a long step has been made towards the reduction in the cost of living. It is a fact that there has been, pretty well throughout the world, a tendency on the part of the average worker to hold back, so as to make the work in hand last as long as possible, and thereby, in his opinion, preserve the era of plentiful employment and high wages. This tendency was perhaps not so much in evidence on this continent as it was in other countries, Great Britain especially suffering from this viewpoint of labor. Over there they had a regular name for it, thus giving it the dignity of a policy. It was known as "ca' canny," which is a Scotch colloquialism for "take it easy," and for which the French use the expression "laissez faire."

Conscientiously carried out, this policy results in bringing the production costs of every article it is applied to up to an ever-increasing figure, a figure which represents far more than the real value of the finished article. Brought to bear over a wide range of articles, it naturally affects the pockets of the men themselves who are responsible for it, and forces them to demand a correspondingly higher rate of pay. So the thing goes on. The surest way to obtain better living conditions and a reasonable wage, which will allow the worker to obtain the comforts of life, is for him to work while he is at it, without skimping and holding anything in reserve. An article produced by maximum efficiency, at lowest cost, will be in greater demand than when the same article is produced at a price which puts it out of the reach of many who would otherwise use it. The workman can receive a higher wage, the manufacturer can realize his profit, and a far larger demand is created. High wages in themselves are not an objectionable feature to any manufacturer. Where he loses money is in training men to supply a constant turnover, and in having machines standing idle or operating at low efficiency through the unwillingness of a man to give his best when he is receiving the wages he has demanded. If this condition is passing away, there is much to hope for. It would seem that the common-sense of the workers was at last asserting itself, to the detriment of those who

have so long been trying to lead him along what looked like the flowery paths of ease. This return to a normal viewpoint will be no doubt viewed with alarm by some of these erstwhile friends of the people.

TAKE ADVANTAGE OF CASH DISCOUNTS

THE average merchant is apt to think that he loses nothing but the discount when he fails to take advantage of the cash discount offered for payment of his bill in five or ten days, and that so long as he pays before the expiration of the full time allowed his credit is A-1.

But, a perusal of an address by Webster King Wetherill, president of the Aldine Trust Company of Philadelphia, which is published in the Proceedings of the American Drug Manufacturers' Association for 1919, reveals the fact that financial men are apt to rate the merchant who fails to take advantage of the cash discount as of uncertain credit.

Mr. Wetherill says: "In all credit rating, the buyer who does not take advantage of this cash discount is always classed as of uncertain credit; and even though his statement may appear to show him a good credit risk, his credit rating is lowered when he does not take advantage of the cash discount. The best that can be said of a business man, and when once said eliminates any further consideration of his credit, is: 'He discounts his bills.' Those who discount are the highest credit; those who do not are inferior risks.

"It is to eliminate the credit risk that the discount is by natural process of business development continued at a rate higher than the use of the money is worth. The discount for prompt pay is sound in principle, and is a good practice, and differentiates between good credit customers who can discount and the slow-pay poor risks who have not got the money to pay promptly nor good credit to finance their business.

"While discount is called an allowance for prompt pay, it is in reality figured off the selling price in calculating returns, and is a penalty which the slow payer, who does not take advantage of this, pays for the use of the money and the risk of carrying the account.

"You classify your customers by their discounts—those who discount you can send all the goods they want and those who are not able to take your discounts are a class that must be watched."

EDITORIALS IN BRIEF FORM

BE prepared to talk about your goods, to explain their use, and to show their advantage. Do this constructively and in a dignified manner, and you will increase sales many times.

* * *

BE helpful to your customers in making their selection. Don't force your choice upon them, but convincingly explain to them why a certain brand or a certain kind is just what they want. They like attention but not assertiveness.

* * *

IN THE case of hand-bills, brevity and display are essential. A hand-bill must be so written and so typographically arranged, as to tell its story even as it is flying down the street, after having been given a hasty "once-over" by the original recipient. Dealers who employ this method of advertising should remember this.

* * *

THE agitation for closer trade relations between Canada and the British West Indies is meeting with most encouraging success. Business men have long recognized the advantages to accrue from an agreement such as that which has resulted from the recent conference at Ottawa.

* * *

KNOW your merchandise. Know the differences between brands and kinds. Be able to explain why this make is better for the use the customer wants to put it to than another make. The informative plumber is the one who "gets there."

* * *

NEVER forget in the planning of window displays or in the buying of stock that it takes all sorts of people to make even your little business world, and that no two people of them all, perhaps, have just the same likes and dislikes. Buy with a thought of variety in mind. Put variety into your window displays.

* * *

THE early closing movement is meeting with a great deal of success, especially throughout the Western Provinces. In this as well as any other good cause there are always a few who are only too glad to take every opportunity to break the by-law. The latest comes from a Western city where apparently there are some merchants who have been doing business after closing hours by utilizing the telephone service. The city officials are putting through an iron-clad definition of the word closed which will leave no room for doubting its meaning.

There's a great shortage of hou

HOUSES, houses, more houses, is the big cry to-day, and while there may be a slight tendency to slow up building on account of a shortage of raw materials, the need is there and must be met.

Everywhere we see old houses being turned into modern homes, old structures which had long since been relegated to the discard as untenantable, now being transformed into liveable, cosy dwellings.

There is plumbing to be done all around you—homes where your services are required, houses where an extra bath-room would add to the comfort of the

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

Port Hope Sanitary Enamelled

or Canada's growing population

occupants. There are rural homes waiting to be fitted with modern sanitary conveniences. It's your privilege and duty to suggest.

Why not size up your neighborhood and make a note of the plumbing possibilities, then start the ball a-rolling by making a few formal calls on house owners and proposing the changes which would improve their property?

Carry a *"For the Home"* booklet with you. It presents the popular lines of Port Hope Sanitary Enamelware. It's easy to sell from.

g. Company, Limited

Halifax Office:
cCURDY BUILDING, HOLLIS ST.

Head Office:
ROYAL BANK BUILDING, TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

will help overcome the shortage

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Beamsville, Ont.—A. J. Byles has sold his plumbing business to F. G. Quigly.

A. C. BROWN GOES WEST

Winnipeg, Man.—A. C. Brown, western manager of the Mott Co., is making a trip through Manitoba, Saskatchewan and Alberta. He will be absent from Winnipeg for about three weeks.

LEAVES ON BUSINESS TRIP

Mr. W. F. Hill, vice-president of W. H. Cunningham & Co., has left Toronto on a business trip through the Western Provinces.

PETERBORO PLUMBERS' PICNIC

The Master Plumbers of Peterboro held their annual picnic on Thursday, August 12th.

TO ARRANGE STEAM HEAT FOR CHATHAM THIS YEAR

Chatham, Ont.—The Board of Directors of the Chamber of Commerce appointed a strong committee to meet representatives of the Chatham Steam Heating Company relative to supplies of steam heat for the coming year.

MUTUAL IMPROVEMENT MEETING

Toronto, Ont.—There will be a meeting in Toronto early in Sept. of the Sanitary Engineers and officials of the Provincial Board of Health of Ontario. It will be a sort of mutual improvement meeting. Matters of special interest to the plumbing trade will be discussed.

JOTTINGS FROM MONTREAL

Montreal, Que.—Two new inspectors have assumed duties in connection with the Sanitary Inspection Department at the City Hall, Nap. Geoffrion and G. Guay being associated with Mr. Cousineau's inspection forces.

Montreal, Que.—Trade conditions, while somewhat quiet, are seasonably fair, and some report a considerable amount of job work. Labor conditions are also fairly satisfactory, and a prominent master plumber stated to Sanitary Engineer last week that the special agreements made some months ago with the National Syndicate were working well.

Montreal, Que.—The plumbing by-law of the metropolis has been whipped into pretty good shape, according to advices from the Civic Sanitary Department by Sanitary Engineer. In view of the fact, however, that the whole building code of the city has been under revision, the matter will be considered only as a whole, and it will perhaps be some months before the Administrative Commission considers and approves of these new laws.

WESTERN ONTARIO NOTES

Noble and Rich, London, Ont., have been awarded the plumbing and heating work for new apartments being erected for R. C. Eckert.

* * *

The trustees at Broughdale, Ont., contemplate installing an electrical motor and pumping outfit to supply water for the new school that is now being erected. Prices are wanted at once on all equipment. W. G. Murray, Dominion Savings Building, London, architect.

* * *

The council of Goderich, Ont., contemplates installing an automatically controlled chlorination plant in connection with the town water supply and also plans to lay additional mains.

* * *

Owing to substantial growth at Leamington, Ont., this season the council plans to extend the water services and will lay a new 2 1-2-in. main from Park St. to the lakeshore and east of the town limits.

* * *

Eggett & Co., of London, Ont., have received the contract for the heating and plumbing for the handsome new office building being erected for the London and Western Trusts Co.

* * *

Frank Desautel, Amherstburg, Ont., wants prices on plumbing and heating in connection with the residence he will erect shortly.

* * *

T. L. Partridge & Co., London, have been awarded the contract for heating and plumbing for new $8,000 residence to be erected by Keith Hammond.

* * *

Dr. W. H. Hill, former director of the Institute of Public Health at London, Ont., and recently State Director of Public Health for Wisconsin, has resigned and returned to his former position at London. He is planning important extensions in connection with the work.

* * *

In connection with its program of extension of sewers and waterworks the town council at Sandwich, Ont., has awarded contracts amounting to $22,000 for water mains and sewers to the Webster Construction Co., of London, Ont.

Hooley Bros., of Port Talbot, Ont., have commenced work on a new residence to cost $5,000 and want prices on heating and plumbing.

* * *

Tenders will be received until August 27 for plumbing, heating and electrical work in connection with six double residences and a new nurses' home to cost $125,000 for the Psychiatric Hospital now being erected in Westminster Township near London. H. C. McBride, London, is the architect.

* * *

In order to augment its supply of gas the Dominion Natural Gas Co. will expend $100,000 in drilling in Houghton and Middleton Townships. The work will be done under the direction of Glen N. Dale, of Hamilton, and any additional supplies located will be piped to the municipalities.

* * *

Tenders will be called for shortly for plumbing, heating and electrical work in connection with new Children's Hospital to cost $75,000 at London, Ont. It will be erected by the I.O.D.E. and Watt and Blackwell, of London, are preparing plans.

* * *

City Engineer Harry Brazier, of London, Ont., has commenced work on plans for a new sanitary sewer system which will cost $250,000. Work will be commenced immediately on a system for Knollwood Park, the contract having been awarded this week to John McMurphy, at $25,000. This will mean a large number of new water services and sanitary installations when completed.

VICTORY FOR PLUMBERS

Kingston, Ont.—Local pipe-fitters beat out the boys from the Davis Tannery in their last game. The Tanners worked hard, with a few exceptions, but the lead-pipe boys found the holes in their line-up and wriggled through.

"Lefty" Appleton, whirlwind manager of the Plumbers, keeps his boys on the hop all the time. Under his coaching the new man, Gallagher, is coming along fine.

The line-up of the plumbers was as follows:—Plumbers:—Ferguson, c. Ramsay, p; Gallagher, 1b; Saunders, 2b; Fenning, 3b; Grimshaw, ss; Appleton, cf; Lane, lf; Hackett and Richards, rf.

The score by innings:

A. Davis & Son .....000000100—1
Plumbers .....01030102x—7

Provincial Control of Inspection

Question of Provincial Control of Plumbing Inspection to be Discussed at Annual Meeting of Ontario Association of Plumbing Inspectors

Brantford.—According to President George W. Broomfield, of the Ontario Association of Plumbing Inspectors, the placing of plumbing inspection under the direct control of the provincial authorities will be the chief matter to come before the annual meeting of the organization when they convene during the second week of September in Toronto.

President Broomfield states that the organization, which was formed in April, has in mind the promotion of better health conditions in the province.

Should plumbing inspection be placed under provincial control, it is expected that a new universal code of plumbing laws will be adopted.

Secretary Meadows, of Toronto, is arranging the program for the convention.

MONTREAL PLUMBERS KEEP TAB ON SITUATION

Montreal.—In view of the fact that there has been some unrest in Montreal plumbing circles, as far as the journeymen are concerned, the Master Plumbers' Association are taking any necessary precautions to preclude the possibility of any strike troubles.

At a special meeting held recently arrangements were discussed for handling any situation which might arise, and there was a large attendance of members, president D. A. Bethune and H. Lavigueur presiding as joint chairman.

A special committee reported on the possibility of a strike occurring, and their advices were to the effect that a strike was improbable. They did advise, however, that the association prepare itself for any eventuality. It was even suggested that if trouble loomed up, it would be better to close down for a time and thus combat any unreasonable element which sought rulings which the association did not feel like complying with.

Last report indicates that satisfactory solution of any existing difficulties will be made possible.

ADAM HALL LIMITED

Adam Hall, Ltd., of Peterborough, Ont., have issued a new catalogue featuring their Tropic Range, showing many of its distinctive features and explaining its construction, including detachable and interchangeable reservoirs and parts, etc. Copies of this catalogue will be forwarded upon request.

RICHARD SANDERS IS ASSISTANT INSPECTOR

London, Ont.—Increased activity in sanitary inspection of the city is being shown by the Board of Health and Richard Sanders has been appointed assistant sanitary inspector in order that the work may be carried out more efficiently. His appointment has been considered for some time and has now been finally approved by the board.

He will be an assistant to James Lutman, the chief sanitary inspector. J. W. Scott, the other assistant in this department, has been ill for some weeks.

MASTER PLUMBERS MEET

Montreal.—At a special meeting of the Master Plumbers' Association held last week arrangements were finally completed for dealing with any cessation of the work that might take place this year in the plumbing and steamfitting trades in the city.

The secretary intimated that a joint meeting of the law and finance committees had been held that morning, and these committees now recommended that $20,000 be allocated meantime from the general fund for their use in stabilizing conditions in their trades should such an expenditure be deemed necessary. The next meeting unanimously approved of the report and gave the authorization desired.

One member moved that a further grant of $20,000 be made, thus making $40,000 in all, but as this proposal would require to be studied first by the finance committee it was agreed that this committee should be prepared to submit a report on the subject at the next special meeting to be held on Wednesday, August 4. D. O. Bethune and H. Lavigueur presided.

CORRECTED ADDRESS

A mistake appeared in the advertisement of McIntyre & Taylor in the August 1st issue. Their Toronto address was given as 591-3 Queen Street West, whereas it should have been 501-3 Queen Street West.

ALLEGES PLUMBERS SUGGEST AMENDMENTS

London, Ont.—The city of London's representatives at the coming convention of the Ontario Municipal Association in Toronto will launch a campaign against the Provincial Government's proposals to enact new plumbing regulations. It is claimed by D. O. J. Cunningham of this city, who recently succeeded in a fight for local simplified sanitary laws, that the plumbers have submitted the suggestions, which the Government intends to place upon the statute books.

UNION MEMBERS CAN CHOOSE EMPLOYERS

Toronto.—A meeting of union plumbers was recently held to discuss the proposal of members of the Master Plumbers' Association that union plumbers work for members of the association only.

Members of the union said that general contractors who were working on a percentage basis had secured a number of large contracts over firms of the association and had also taken a number of good mechanics into their employ. The result was that members of the association had asked the union to come to its assistance. It decided to discuss the proposal after its committee had heard from J. G. O'Donoghue, solicitor, who is said to have advised that there was nothing to prevent union plumbers from choosing their employers.

While a number were prepared to accept the suggestion in view of the relations which exist between the association and the union, others took the view that no agreement should be entered into.

PARTS FOR PROVAN HAY CAR

J. B. Crawford Estate, Dalton, Ont.—Can you inform us where we can purchase parts for the Provan Hay Car?

Answer.—We understand the Oshawa Hay Carriers Works, of Oshawa, Ont., manufacture these.

HOLD DOWN CREDIT BUSINESS

Continued from page 20

united effort he may hesitate to delay payment any longer.

* * *

BUY NEW BUSINESS

Offer a debtor "a dollar off" of her balance for every sale to a prospect whose name is suggested by the debtor.

* * *

TAKE HIM TO LUNCH

Suppose your debtor is a business man who may be a prospect for still more business. Take him out to lunch some day, don't mention the "balance due," talk about more business, foot the bill for the lunch, and leave him with a pleasant good-by. Your hospitality will urge him to pay up every time he thinks of the good meal.

* * *

CHARGE INTEREST

Many retail dealers and a goodly number of professional men have begun to charge interest on outstanding accounts not settled within a certain time. This is almost the opposite of giving a discount for prompt payment. After all, why should it not be done? When value is received by one party to the transaction, value should be received by the other party at the same time. If not, why should not the customer pay interest for the use of the seller's money? Think it over.

NEW CANADIAN PATENTS

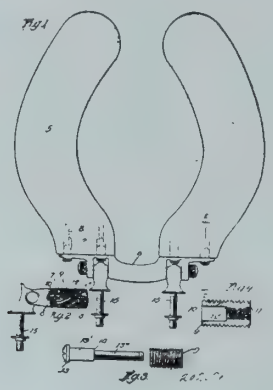
(Issued for Plumbing and Heating Goods)

NO. 202,091. CLOSET SEAT HINGE

The Brunswick-Balk-Collender Co., assignee of Eardley C. B. Judd, both of Chicago, Illinois, U.S.A.

The combination of a water closet seat having bores therein, externally threaded bushings forced into said bores with the threads biting into the walls of the bores, a hinge member, and bolts passing through said hinge member and the bushings and seated in the seat beyond the bushings.

The combination of a water closet seat, a bushing seated therein and having a large bore at one end and a smaller



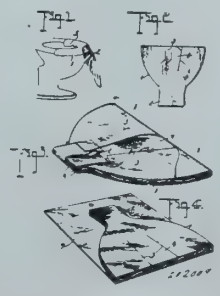
connecting bore at the other end with a shoulder at the juncture of said bores, a hinge member, and a bolt passing through said hinge member and the bushing and threadedly engaging the seat beyond the bushing, said bolt having a shoulder to engage the shoulder in the bushing.

The combination of a water closet seat, having a large bore therein with a smaller connecting bore extended therefrom, an externally threaded bushing forced into the said large bore with the external thread biting into the wall of the bore, said bushing having a large smooth bore at one end thereof and a smaller threaded connecting bore at its other end with a shoulder at the juncture of said bores, a hinge member, and a bolt for securing the hinge member to the seat and having a large smooth head portion to fit snugly in the large bore of the bushing and a smaller bore of the bushing, said threaded end portion of the bolt projecting beyond the opening and into the seat with the thread biting into the wall of the small bore in the seat.

NO. 202,008. SANITARY APPLIANCE

Emma W. Hast, Louisville, Kentucky, U.S.A.

A sanitary appliance for toilet seats which consists of a sheet of suitable material of a size to extend over substantially one-half of the seat, said sheet being formed at one side

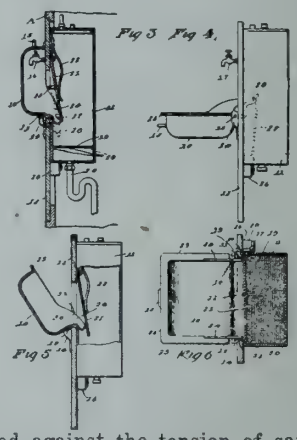


with an extension adapted to be bent downwardly over the front edge of the sheet, said sheet being slit at its other side at spaced points to form a tongue from the central portion of the material bendable downwardly to engage the forward edge of the seat opening, the edges of the slit portion of the sheet at each side of the tongue being slit substantially transversely of the sheet to provide bendable flaps for engagement with the lateral edges of the seat opening.

NO. 201,973. WASH BASIN AND SINK

John B. Bressler, Grass Valley, Oregon, U.S.A.

In combination a fixed support having an opening, a water container pivotally mounted upon one side of the support for vertical swinging movement, a stationary waste receiving tank arranged at the opposite side of the support and communicating with the container through said opening, a closure controlling the communication between said opening and mounted for pivotal movement, yieldable means for holding the closure in closed position when the water container is horizontally disposed, means whereby the closure is auto-



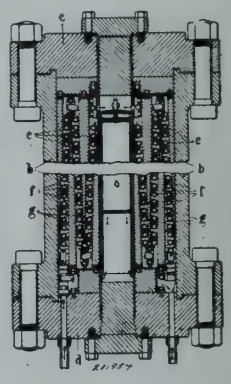
matically opened against the tension of said yieldable means whereby the container is elevated.

In combination, a water container pivotally mounted for vertically swinging movement, a stationary waste receiving tank communicating therewith, a shaft associated with said container for movement therewith and including an angular offset extremity, a leaf spring, said spring being disposed in the path of movement of said offset angular extremity of the shaft to engage the latter to hold said container in either vertical or horizontal position.

NO. 201,954. CATALYST FURNACE

Harold Cecil Greenwood and William Ronald Tate, co-inventors, both of London, W.C.1, England.

A catalyst furnace for use in operations of the character referred to, comprising a catalyst space and a heat interchanger surrounding said catalyst space and comprising one or more thermally insulating partitions shaped to suit the varying temperature gradient in the interchanger.



A catalyst furnace comprising a central catalyst space, a heat interchanger surrounding said catalyst space and comprising sets of coils for the passage of the gases in one direction separated from one another and from the catalyst space and from the outer pressure retaining wall by wedge-shaped partitions of thermally insulating material.

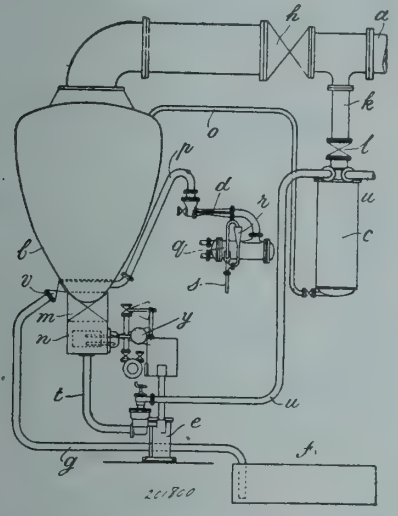
A catalyst furnace as claimed in paragraph 2, in which the coils or groups of coils are separated by spiral baffles.

NO. 201,800. STEAM CONDENSING AND FEED WATER SYSTEM

Charles Russell Lang, Cathcart, Glasgow, Scotland.

In a closed feed system for the auxiliaries of a steamship, in combination, a boiler, a surface feed water heater, an auxiliary exhaust range, an auxiliary condenser, a steam jet ejector for withdrawing the air, with vapour, from the said condenser, a boiler feed pump for withdrawing the water of condensation from the said condenser and discharging it through the said surface feed heater to the boiler, float control means for controlling the said pump according to the amount of water required to be discharged from the said condenser, means whereby the steam in the said auxiliary exhaust range is condensed as far as possible in the said feed heater, the remainder being condensed in the said auxiliary condenser, a reserve feed tank, and means for controlling by hand the discharge of water from the said feed tank into the said condenser.

In a closed feed system for the auxiliaries of a steamship, in combination, a boiler, a surface feed water heater, an auxiliary exhaust range, an auxiliary condenser, a steam jet ejector for withdrawing the air, with vapour, from the said condenser, a boiler feed pump for withdrawing the water of condensation from the said condenser and discharging it through the said surface feed heater to the boiler, float control means for controlling the said pump according to the amount of water required to be discharged from the said



condenser, means whereby the steam in the said auxiliary exhaust range is condensed as far as possible in the said feed heater, the remainder being condensed in the said auxiliary condenser, means whereby the condensate is drained from said feed heater into the top of the said condenser, a reserve feed tank, and means for controlling by hand the discharge of water from the said feed tank into the said condenser.

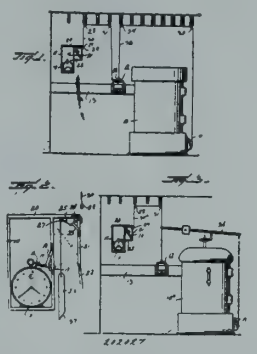
In a closed feed system for the auxiliaries of a steamship, in combination, a boiler, a surface feed water heater, an auxiliary exhaust range, an auxiliary condenser, a steam jet ejector for withdrawing the air, with vapour, from the said condenser, a boiler feed pump for withdrawing the water of condensation from the said condenser and discharging it through the said surface feed heater to the boiler, float control means for controlling the said pump according to the amount of water required to be discharged from the said condenser, a branch pipe from the said auxiliary exhaust range to the said feed heater, a branch pipe from the said auxiliary exhaust range to the said condenser, a spring loaded valve on said last mentioned pipe, a reserve feed tank, and means for controlling by hand the discharge of water from the said feed tank into the said condenser.

NO. 202,027. TIME CONTROLLED FURNACE REGULATOR

Harvey A. Mailloux, Haverhill, Massachusetts, U.S.A.

A controlling mechanism including a supporting frame having a trap door pivoted at one end, a trigger mounted on said frame adjacent the free end of the door and normally engaging the door, a time controlled mechanism carried by said frame and engaged with said latch to cause it to release at a predetermined moment, and a weight resting upon the door and having a flexible connection extending therefrom, a latch mounted upon said frame with which said flexible connection is engaged to cause the retraction of the latch upon the fall of the weight, and a second flexible connection having a member with which said latch normally engages.

A controlling mechanism of the character described including a supporting frame, a hanger depending from the frame in spaced relation thereto, a trap door pivoted to said hanger, a trigger mounted on said frame and normally engaging the free edge of the door, time controlled means for releasing said trigger from its engagement with the door and mounted on the frame, and a weight having a flexible connection extending therefrom and normally disposed between the hanger and the frame, the lower edge of said weight being bevelled so that the weight may be disposed diagonally between the hanger and the frame with its lowest corner resting upon the door adjacent its pivotal point.

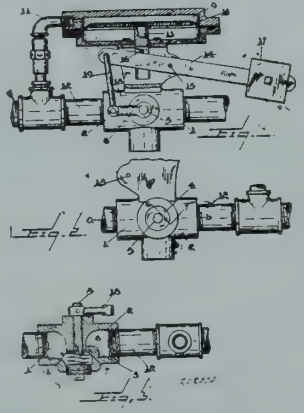


A controlling mechanism of the character described including a rectangular member, a trap door pivoted to one wall of said rectangular member and normally extending across the bottom thereof, a trigger mounted on said rectangular member and normally engaging the free edge of the door to hold it raised, time controlled means for releasing said trigger from its engagement with the door, and a weight having a flexible connection extending therefrom and normally disposed in said rectangular member, the lower edge of said weight being bevelled so that the weight may be disposed diagonally within the rectangular member with its lowest corner resting upon the door adjacent its pivotal point.

NO. 202,000. PRESSURE REDUCING VALVE.

George R. Gamble, Port Dover, Ontario, Canada.

In a reducing valve the combination of an inlet chamber, an outlet chamber, a partition separating the two, having a flat valve seat formed thereon at its inlet chamber side, a valve stem journalled in the partition, a valve disc rotatable by the valve stem and engaging the valve seat, the disc and seat having ports therethrough adapted to be brought into or out of alignment by the rotation of the disc, a movable diaphragm subjected to the pressure of the low pressure



side of the valve, connections whereby the diaphragm may rotate the valve stem in one direction, and means yieldingly tending to turn it in the reverse direction.

A reducing valve constructed as set forth in claim 1, in which the valve stem operating means and connections comprise a rock arm secured to the valve stem, a suitably fulcrumed weighted lever, a link connecting the lever and rock arm, and a sliding stem operated by the diaphragm engaging the said lever.

A reducing valve constructed as set forth in claim 1, in which a threaded opening is provided in the wall of the outlet chamber opposite the valve disc through which the valve disc may be inserted and a plug screwed into said opening.

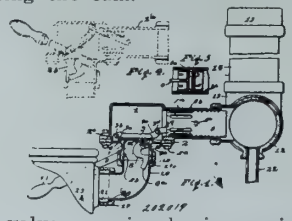
NO. 202,019. FLUSHING VALVE.

William F. Knell, Detroit, Michigan, U.S.A.

In a flushing valve, a casing having an inlet and an outlet, a sliding piston valve closing said inlet, a hinged valve closing the outlet, a toggle connection between the valves whereby the valves are locked in closed position, and manually operable means for opening the valves.

In a flushing valve, a casing having an inlet and an outlet, a sliding piston valve closing said inlet, a hinged valve closing the outlet, a toggle connection between the valves whereby the valves are locked in closed position, a collar surround-

ing the opening in the casing below the outlet valve, a rock shaft mounted below said valve, a cam on said rock shaft for opening the valves, and a lever connected with said rock shaft for actuating the cam.

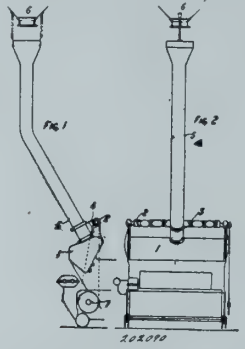


In a flushing valve, a casing having an inlet and an outlet, a sliding piston valve in said inlet, a hinged valve in the casing for closing the outlet, a toggle whereby the valves are locked in closed position, and manually operable means for opening the valves.

NO. 202,090. MEANS FOR DISTRIBUTING FUEL ON TO THE GRATE SURFACE OF A STOKER

The Babcock & Wilcox, Ltd., London, assignee of Herbert Henry Baker, Monkseaton, and Christopher Samuel Davy, Dulwich, all in England.

For effecting uniform distribution of the fuel on to the grate surface of a mechanical stoker, in combination with a



chute leading to the stoker, means whereby the lower end of the chute is automatically caused to travel continuously back and forth transversely of the direction in which the fuel is fed by the stoker.

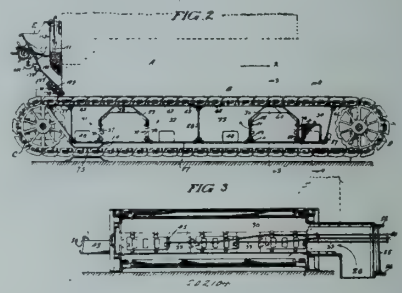
The combination with a chute for leading fuel to the hopper of a mechanical stoker, of a rotary drum representing a cam track, and a follower element connected to the lower end of the chute and engagement with said track.

The combination with a chute for leading fuel to the hopper of a mechanical stoker, of a drum receiving rotary movements from the stoker mechanism and formed with two helical grooves of opposite hand, and a follower element connected to the lower end of the chute and engageable with said grooves.

NO. 202,104. FURNACE

The Coxe Travelling Grate Company, Port Carbon, assignee of William Lloyd Hazleton, both in Pennsylvania, U.S.A.

In combination with a travelling grate, a wind chest arranged beneath the working travel of the grate and opening to the fire bed, said wind chest being longitudinally and transversely subdivided into independent chambers, and means for independently controlling the supply of air to each chamber.



In combination with a travelling grate, a wind chest arranged beneath the grate and having a traverse twyer box with top sealing plate, said grate having transverse grate bars with sealing ribs bearing upon the sealing plate of the twyer box and forming a seal therewith, the width of said sealing plates being sufficient to insure the engagement of a succeeding sealing rib therewith before the preceding sealing rib parts therefrom, substantially as described.

In a travelling grate, a grate bar having a web portion, a depending web extending lengthwise of the bar and transverse ribs extending from said web, for the purpose described.

Dominion Oxygen Co. Plans Big Extensions

An important recent announcement is that of the Dominion Oxygen Company's promised erection of a chain of great oxygen plants for separating oxygen from the atmosphere. The first of these plants will be situated in five of the Dominion's industrial centres, and service stations will be established throughout Canada to supply oxygen users wherever there is a demand for the gas, either on or off the railroad.

The first of these plants has already been completed at Toronto. It will supply the Canadian market through an extensive warehousing system, pending the erection of the additional plants. The sites for these additional plants have been secured at Montreal, Winnipeg and other points, so that the work of construction may be proceeded with as rapidly as possible.

Reorganize Canada Copper Co.

The Canada Copper Corporation will be reorganized. Heretofore, the Canada Co. and its predecessor, the British Columbia Copper Co., have operated under American charters, but the new concern will take up a Canadian charter, thereby effecting some saving by eliminating dual taxation. The Canada Copper Corporation has practically completed a 2,000-ton mill and production, after many delays, should be started before the end of the year. It has taken about three years to build the plant, which can treat 2,500 tons of ore daily.

PLUMBERS DECIDE TO BUY SHARES IN CO-OPERATIVE SOCIETY

Saskatoon, Sask.—At a meeting of the Saskatoon Plumbers' Union it was decided to purchase $100 worth of shares in the Saskatoon Co-operative Society, Ltd., according to an announcement made at the close of the session.

ENQUIRIES

1368. **Brass foundry, plumbers' and cabinet ware.**—A leading firm in British Guiana desire to stock for the hardware department brass foundry, plumbers' and cabinet ware.

1371. **Wood screws.**—A Buenos Ayres firm of hardware importers are interested in receiving quotations for at-headed wood screws, all sizes. These screws were formerly made in a local factory, which can no longer supply the demand. Samples can be consulted at the Commercial Intelligence Branch, Department of Trade and Commerce.

1376. **Plumbers' supplies and electrical Goods.**—A house of commission agents in Rome desire to hear from Canadian exporters.

1377. **Electrical material.**—A most important limited company in Milan are desirous of purchasing electrical material in Canada.

1378. **Electrical material.**—A Milanese house are anxious to buy electrical material in Canada.

COMPETITION—THE MODERN BUGABOO!

Are you watching your competitor? It is altogether likely that, in one way or another, there are a lot of things he is learning from you, and it is up to you to see that you get a pointer or two from him.

Maybe if you step down the line and look at his windows you will find he has a new wrinkle in merchandising or in display that it will pay you to watch. Perhaps you can pick up a suggestion from his method of doing business that will mean better business for your store. If you glance through his advertising in the newspaper, perhaps, you will get one of those "hunches" that develop into big ideas, something that you can turn into money in your pocket.

That is the attitude the progressive plumber is taking otwards his competitor—"bugaboo nothing!—he's giving me ideas that mean bigger business for me."

Sound Systems for Figuring Turnovers; Actual Inventory Figures Do Not Always Show the Average Condition of the Stock

The Dealer's Problems Are Taken Up in the Following Article in a Way That Should Furnish Him With New Thoughts on the Value of Keeping Records, Particularly Now When Everything is So Uncertain in the Way of Buying and Selling.

NO matter how many dollars are put into a business, unless they are made to produce new profits they might better be left in the bank, or loaned on good security to some one who would pay the legal rate of interest. Idle dollars represent a continual loss, especially when they are tied up in stock that no one wants.

This fact, of course, is quite generally understood, but the difficulty lies in the fact that the dealer is not always able to tell when the dollar is idle and how to make it stick on the job. For the dollar is a quiet worker, and unless he has the right kind of assistance the dealer may not discover until it is too late that some portion of his capital has gone into retirement. There is only one sure way out of this and that is through figure records that tell everything that is done about the store during the day, how much stock is on hand; how much is tied up in accounts receivable; sales for the day, payments on account and expenses—in fact, every little detail that affects the profits the dollar should make.

The Folly of Overbuying

We are told by commercial agencies that at least 90 per cent. of dealers overbuy because they do not know how their stock is moving. They lack the records that should tell them when it is necessary to buy certain lines and when it is not. And right here it is well to say that a large proportion of failures are due to this glaring business fault.

Whenever a dealer invests his money in a certain line and sells out that line entirely, he has turned his investment once. Every time a turn is made a profit is made. It follows then that the more turnovers a dealer can pluck from his dollars the greater will the number of his profits be. Frequent turnovers, then, cannot be accomplished if a merchant is inclined to overbuy.

Consequently, it doesn't take much of an effort to show that a few dollars turned frequently will do more than many dollars that move slowly or dollars that do not move at all.

The number of times a year a stock of a business is turning may easily be figured by dividing the year's sales (figured at the cost of the goods) by the average value of the stock on hand during the year.

Safe Basis for Figuring

The cost value of goods sold last year in a certain store amounted to $50,000. The stock records showed that an average of $10,000 worth of goods was carried. Of course, there was more than this amount on hand sometimes, and less at others, but the **average** for the year—the only safe basis for figuring turnovers—was $10,000. This goes into $50,000 five times—or this business succeeded in making five complete turnovers.

Sales (at cost)	$50,000
Stock	10,000
Turnovers	5

There is another way of figuring turnovers that in many cases is equally satisfactory. That is, to take the total sales, at selling price, and divide by the retail value of the stock.

Sales (at selling price)	$75,000
Stock (at selling price)	15,000
Turnovers	5

A very natural mistake can be made —has been made—in some cases where a dealer takes his total sales at retail and his stock at cost and attempts to find the number of times his capital has turned. See what happens:

Sales (at retail)	$75,000
Stock (at cost)	10,000
Turnovers	7½

This is an easy way to make a few more stock turns, but it isn't worth much as an accurate reflection of the condition of the business. And figures like these must be accurate if they are worth anything at all.

Lets Supply Get Low

Another thing to be remembered is that actual inventory figures do not always show the average condition of stock. The wise manager lets his supply of goods get as close to the low water mark as he dares before taking inventory, so as to cut down the labor required. Where a stock record is kept, an average of value of goods on hand can be taken, which is more satisfactory for figuring turnovers than the inventory figures.

Canada's Copper Production in 1919

Copper Production in 1919 Lightest Since 1911 —Zinc, Lead and Nickel Also Lighter

ACCORDING to preliminary official returns, the Canadian production of copper fell from 59,384 tons of 2,000 lbs. in 1918, the highest on record, to 37,562 tons in 1919, the smallest since 1911. Of the total, 27,160 tons were contained in blister copper and in matte produced in Canada, part of which was refined at Trail, B.C., and part at Port Colborne, Ontario, the balance being exported for refining, while 10,402 tons were estimated as recovered from ores exported to United States smelters. The total production of refined copper in Canada last year was 3,487 tons (2,000 lbs.) against 3,809 tons in 1918, practically all of which was produced at the electrolytic refinery of the Consolidated Mining & Smelting Company at Trail.

The zinc production last year amounted to 15,869 tons (2,000 lbs.) against 17,451 tons in 1918. The production of refined zinc (all of which was produced at Trail) was last year 12,326 tons against 12,574 tons in 1918, 9,985 tons in 1917, and 2,974 tons in 1916, the first year in which commercial zinc was produced in the country.

Canada's output of lead in 1919 was estimated at 21,948 tons (2,000 lbs.) against 25,694 tons in the previous year, the figures representing the quantity of refined lead and pig lead produced in Canada from Canadian ores, together with the lead estimated as recovered from ores exported to the United States. The 1919 production included 16,446 tons of refined lead produced at Trail.

The nickel production of Canada in 1919 is given as 22,272 tons (2,000 lbs.) against 46,254 tons in 1918. The new refinery of the International Nickel Co. at Port Colborne commenced operations in July, 1918, and the smelter of the British America Nickel Corporation started operations in January, 1920, the refinery of the latter plant having an annual capacity of about 7,000 tons of nickel and 3,500 tons of copper.

Edward Milner, for many years a pump manufacturer at Strathroy, Ont., died recently at Glenboro, Manitoba.

George Miller, of Glanworth., wants prices immediately on plumbing and heating for new residence for which he is preparing plans.

Making Profit from Credit Customers

This Article is Useful to Plumbers Not Only for Their Own Store But Suggests Sales of Systems to Other Merchants.

SOME good points in how to deal with credit accounts, are brought out by C. C. Miesen, in the "National." "I know," he says, "that most dealers prefer to do a strictly cash business, but there are a great many who find it necessary to cater to a charge trade. A necessary evil, they call it, which must be permitted because of its trade-holding value.

"The dealer who does a charge business is threatened constantly with the grave danger of allowing to certain customers a greater amount of credit than it is possible to collect, or at least, to collect easily.

"It did not take me long to discover that safe credit merchandising depends largely on keeping records that tell from day to day how much credit is granted. Our books always are in balance and it is a simple matter to glance at them to find out whether a customer has reached his predetermined credit limit which always is listed at the top of his account.

The foundation of our system really is our recapitulation sheet. All daily transaction of every nature are accumulated on it—cash sales, charge sales, money received on account, invoices received, checks paid, bank deposits, in fact all the figures of the day's business are listed and totaled before posting to the various accounts in the ledger.

"In the extreme left hand column amounts from all the charge sale slips are first listed and totaled. In the next all items on the charge sale slips are likewise listed and totaled.

"When all the other entries have been made the totals of the various columns are posted to accounts of the general ledger according to instructions printed at the head of each column.

"Thus it will be seen that the system is a complete double entry set of books, that the re-cap sheet acts as a distributing journal.

"Postings to the customer's accounts are made from the sales slips.

"One leaf in the ledger binder, which is arranged alphabetically, is devoted to each customer's account. When the account becomes active a statement is addressed and placed in front of the ledger leaf where it remains all through the month. It is posted at the same time as the ledger from the sales slips which are always arranged alphabetically the first thing each morning. After the posting is completed the difference between the total debits and credits is compared with the difference of the totals of the debit and credit posting media, to see if the work has been done correctly.

"As the postings are made to the customers' ledger daily and the balance on every account is extended at every posting, we can tell instantly just how every account stands.

"In the general ledger is listed the amount of merchandise bought, the amount of merchandise sold; accounts payable; accounts receivable; bills payable; bills receivable; express; interest; proprietor's personal account; investment account; donation account; office supplies; light and heat; rent; salaries; profit and loss account; and other expense accounts. These accounts give such complete information about the business that it is possible at any time to draw off a detailed financial statement which is valuable in dealings at the bank and in making out the income tax report.

"From my experience extending over quite a period, I am convinced that one of the effective ways to promote business is to offer credit wisely and judiciously. But this cannot be done unless the dealer has constant and accurate knowledge about every account on his books through figures."

John Harley, Walkerton, Ont., wants prices on plumbing and heating for new $6,000 residence he is erecting.

* * *

Peter Hollinbeck, of Port Rowan, Ont., is interested in tenders for plumbing and heating for a new bungalow which he has commenced.

Some Illuminating Statistics

Canada's Growth, 1867-1919

	1867-8	1919-20.
Paid-up bank capital	$ 30,289,048	$ 124,712,670
Population	3,371,594	8,750,000
Bank deposits	37,678,571	1,841,478,895
Life insurance in force	35,680,082	1,765,376,691
Fire insurance in force	188,359,809	4,585,923,617
Post-offices	3,638	12,622
Railway mileage	2,278	38,879
Railway gross earnings	12,116,716	330,220,150
Total trade	131,027,532	2,351,174,878
Imports	67,090,159	1,064,516,169
Exports	52,701,720	1,286,658,709
Immigration	None	117,000
Customs duties	8,801,446	187,520,613
Vessels registered	5,693	8,568
Manufacturing capital	77,964,020	2,786,649,727
Employees	187,942	692,067
Salaries and wages	40.851,009	553,301,075
Value of products	221.617,773	3,015,577,940
National debt	75.757,135	1,935,946,302
Mineral products (1871)	10,000,000	167,000,000
Fishery products (1870)	6,577,391	61,368,502
Forest exports	18,742,625	70,569,199

Trade With Other Countries

	Exports.	Imports.	Total.	Duty.
1911	$ 297,196,365	$ 472,347,540	$ 760,443,905	$ 73,312,368
1912	315,317,250	559,320,544	874,637,794	87,567.037
1913	393.232,057	692,032,392	1,085,264,449	115,063,688
1914	478,997,928	650,746,797	1,129,744,725	107,180,578
1915	490,808,877	629,444,894	1,120,253,771	70,205,910
1916	822,872,502	564,505,796	1,447,378,298	103,940,101
1917	1,375,758,145	873,437,426	2,024,567,406	134,000,000
1918	1,586,169,792	962,543,746	2,548,713,533	161,588,465
1919	1,268,765.285	916,429,335	2,185,194,620	158,046,334
1920	1,286,658,709	1,064,516,169	2,351,174,818	187,520,613

Immigration From All Sources

	British	U.S.	Other countries	Total
Fiscal year 1916	8,664	36,937	2,936	48,537
" " 1917	8,282	61.389	5,703	75.374
" " 1918	3,178	71,314	4,582	79,074
" " 1919	9.914	40,715	7,073	57,702
" " 1920	59,603	49.656	8.077	117,336

Total immigration, 1900-1920, 3,428,834, viz.: British, 1,248,549; American, 1,318,449; other countries, 861,116.

Manufacturing—Industrial Census, 1915-1917

	1915	1917
No. of establishments	21,306	34,392
Capitalization	$1,994,103,272	$2,786,649,727
Production	1,407,138,140	3,015,577,940
Employees	514,883	692,067
Salaries and wages	289.764,503	553.301.675
Cost of materials	802,133,862	1,605,730,640

British Manufacturers May Establish Here

Desire to Make Connections for Making Certain Goods—May Result in Establishing Factories in Time—Mass Production to Help Cost Control

MONTREAL.—That British manufacturers of various products desire to make closer connection with Canada was evidenced in an interview given Hardware & Metal by H. T. Bates of London. Mr. Bates is in Canada in quest of connections for his principals, Alloy Welding Processes Limited; Fullers' United Electric Works; S. Wolf and Company, and Twiss Engineering and Electric Transmission Company, all of London.

May Be Widespread

In reply to a question Mr. Bates stated to Hardware and Metal that he believed there was quite a widespread desire on the part of British manufacturers generally, to make some arrangements to either manufacture in Canada, or to make connections with manufacturers here that would enable them to turn out their products through Canadian plants. This, for the time being at least, would ensure the British maker a considerably increased output, and at a more favorable production cost. That is to say, when the cost of manufacture is taken into consideration, with duty added, many products can be produced here to better advantage than to be made in England and shipped here in the finished state.

It was further pointed out that the home market was in need of great quantities of goods, and this made it awkward, and sometimes inconvenient, to spare large quantities of some goods for export. Under the plans and specifications and patents held by British houses, it would be an easy matter to make connections here that would result in a satisfactory production of such goods. This might, in many cases, result in the establishing eventually of branch factories in Canada.

Mass Production

"Mass production is a great thing in England just now," continued Mr. Bates. "It has been necessary in order to keep the cost of production under control, and so meet outside competition."

With reference to the German competition that is bound to come, Mr. Bates stated that the German manufacturer was protecting himself, as was every manufacturer, by inserting a clause to the effect that prices would be dependent upon circumstances that might develop in the course of manufacturing a given product. He instanced a case in which, where a certain repair was wanted for a special type of engine made in Germany, a price of $59 was quoted. A little later word was received to the effect that the price was now to be $98. This seemed to be altogether too much like profiteering and the order was cancelled.

A high standard, Mr. Bates stated, is still maintained with regard to the various British manufactured products, and with mass production it will be possible to produce much less than under the old system.

Canada to Buy 11,000,000 Lbs. Brass and Copper

The Bureau of Supplies and Accounts of the Navy announces that negotiations are under way with Canadian interests to dispose of 11,000,000 pounds of fabricated brass and copper now held by the Navy Department in excess of their requirements. If consummated this deal will amount to about $3,000,000. The material is made up into seamless brass and copper tubing, pipe, sheet and bar, and is distributed among the various navy yards.

Standard Tube Co. Changes Name

Woodstock, Ont.—Standard Tube & Fence Company, Limited, has been authorized to change its name to Standard Tube Company, Limited. The manufacture of wire fence has been discontinued, and as the future will be devoted to the tubing business, the change in name was desirable. Expansion of the tubing line is now under way, and the new company expects to be able, shortly, to place on the market a complete range of close joint and gas and electric welded steel tubing. No change has been made in the company's personnel.

ONE THOUSAND NEW HOUSES READY FOR NEXT WINTER

Provincial Housing Commission Has Used up $8,750,000 it Received From Dominion Government

Over one thousand new homes will be erected this summer under the Provincial housing scheme throughout Ontario, and no less than $4,000,000 will be spent in this direction. The points most directly concerned in this effort to provide homes at a reasonable cost are Windsor, Ford City, Niagara Falls, London, Guelph and Ottawa. About sixty new houses are being erected under the scheme in the Township of York, where about $250,000 will be spent on the work this year. Twenty houses are being erected in the Township of Etobicoke, where about $100,000 is being spent on the work.

The Provincial Housing Commission has no more money to loan.

The Curse of an Education

—From "Die Muskete," Vienna.

TOO LATE

"Why, as a locksmith you earn more than I do as a university professor!"
"Well, you missed your chance when you were young!"

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

THERE have been perhaps fewer changes than usual in market prices, but on many basic lines prices are only nominal at the present time; stocks in many cases being so depleted and deliveries so uncertain that manufacturers and jobbers in an endeavor to fill orders have often to go into the local market and sometimes pay higher prices for goods so obtained.

Higher prices are quoted this week on conductor pipe and elbows, eave troughing, eavetrough mitres, conductor shoes, steel figures and letters.

Ingot metals are quieter. Tin has declined a cent per pound; lead and antimony ½ cent a pound.

Solder remains steady, but copper and spelter show a weak tendency.

Range boilers are still scarce and hard to obtain and the same can be said of all heavy lines of plates and boiler tubes. Wrought pipe is hard to get in some sizes. Black and galvanized sheets are very scarce, while Canada plate is nearly off the market. Enamelled ware is said to be more plentiful than it was but the demand has slackened somewhat. No shortage is reported of brass goods, but pipe fittings, especially malleables, are very scarce.

Altogether prices are very firm and most lines are very difficult to procure even in the smallest quantities. Orders are still being placed with mills and factories in the hope of improvement in the future and manufacturers and jobbers are even yet looking for deliveries of long overdue orders; many in the trade are taking their annual vacations.

MONTREAL

MONTREAL, August 14.—Price tendencies on most lines are still firm. A slight advance was made on genuine wrought iron pipe and on buttweld, the others standing unchanged. This is due to excessive demand as related to the supply, the higher cost of coal and of production generally. Steel and iron hold very firm. All sheets are still scarce and high. Canada plates and tinplates are very scarce. Enamelled ware is available in the necessary quantities. Range boilers are steadily firm. Old materials have a firmer and better undertone. Valves and compression work of various kinds is held without change and there is ample stock for all demands. Soil pipe and fittings are steady. Ordinary pipe fittings are not plentiful, particularly malleables, which are rather scarce. There is, if anything, a better undertone on ingot metals. All in all a good August is looked for by manufacturers and jobbers, relating it to last season. By September there will doubtless be an increased demand for many products.

Some Grades Pipe Have Gone Higher

Montreal.

STANDARD PIPE.—Prices have been advanced somewhat on lapweld pipe, the number 45 list being superseded on July 27th by No. 46, and this is herewith appended. The increase is about three points higher. Genuine wrought iron pipe has advanced five points. There is a shortage of steel pipe and the demand has been thrown on the wrought iron, and advances have consequently to be made. The demand for pipe of certain sizes exceeds the supply.

Standard Buttweld Pipe
Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
⅛	$ 6 50	$ 8 50	$.....	$.....
¼	5 31	7 41	5 91	8 07
⅜	5 31	7 41	5 91	8 01
½	7 10	8 63	7 95	9 48
¾	8 86	10 87	9 95	12 02
1	13 01	16 07	14 71	17 77
1¼	17 60	21 74	19 90	24 04
1½	21 04	25 99	23 79	28 74
2	28 31	34 97	32 01	38 67
2½	44 73	55 28	....	....
3	58 52	72 29	....	....
3½	74 06	90 62	....	....
4	87 75	107 37	....	....

Standard Lapweld Pipe
Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
2	$32 01	$ 38 67	$35 71	$42 37
2½	48 26	58 79	54 11	64 64
3	63 11	76 88	70 76	84 53
3½	75 90	92 46	85 10	101 66
4	89 93	107 55	100 83	120 45
4½	1 05	1 29	1 30	1 54
5	1 22	1 50	1 52	1 80
6	1 58	1 95	1 97	2 33
7	2 06	2 53	2 53	3 01
8L	2 16	2 66	2 66	3 16
8	2 49	3 07	3 07	3 64
9	2 98	3 67	3 67	4 36
10L	2 77	3 41	3 41	4 05
10	3 56	4 39	4 39	5 21

Conserve Sheet Supply Seems the Best Advice

Montreal.

SHEETS AND PLATES. — Latest advices secured from the trade reveal little encouragement regarding supplies of steel sheets. Manufacturers have, however, stated to Sanitary Engineer that they have been encouraged to expect some improvement in the execution of their orders by the various mills, and perhaps this comes from the fact that the manufacturers have placed large orders many months ahead, and have "coaxed" the mills along so that they are getting at least part of their specifications. On the other hand jobbers do not appear to be in any better position to supply the trade with tonnage. Quotations remain high and firm, and higher prices are not improbable.

BLACK SHEETS—

10 gauge	9 00
12 gauge	9 05
14 gauge	9 10
16 gauge	9 35
18-20 gauge	9 40
22-24 gauge	9 45
26 gauge	9 50
28 gauge	9 50

GALVANIZED SHEETS—

U.S. Standard—	
10¾ gapge	13 00
28 gauge	12 60
26 gauge	11 25
22 and 24 gauge	12 05
20 gauge	12 05
18 gauge	12 05
16 gauge	10 75
English Standard—	
28 gauge	13 50
26 gauge	13 25
24 gauge	12 65
22 gauge	12 30
18 and 20 gauge	11 85

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Very Firm Undertone Rules on Steel and Iron

Montreal.

STEEL AND IRON.—Prices are firm on steel and iron, and there is a scarcity. Some sizes in particular are only procured with difficulty, and sometimes not at all. Mills have been running on short time, and indications are that some of them have been closed temporarily. All this has a serious effect on the tonnage available for trade needs, and there is bound to be no easing of the basis; prices indeed may again advance.

IRON AND STEEL

Iron finish machinery steel	5 35
Norway iron	13 50 15 00
Single reeled machinery steel	6 80
Spring steel	5 80
Sleigh shoe steel	5 30
Tire steel	5 50
Toe calk steel, per 100 lbs.	6 20
Band steel	5 30
Harrow tooth steel	5 45
Mining tool steel, per lb.	0 34½
Black diamond tool steel, per lb.	0 24½
Black diamond cast steel, per lb.	0 24½
Bar iron, base	4 95
Refined iron, per 100 lbs.	5 95
Mild steel	5 30

3-16 and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

Corrugated Sheets on Steadily High Basis

Montreal.

CORRUGATED SHEETS. — Although the high prices naturally restrict the demands for corrugated sheets, there is some movement. Scarcity of the material will serve to offset any price-easing tendencies that might be manifest were these supplies greater and demand small. Quotations are firm without change.

Enamelled Ware Steady; Plenty Is Available

Montreal.

ENAMELLED WARE. — There is a steady demand for enamelled ware, but the demand is less than it was, in view of the usual hot weather lull in active jobbing. In view of the fact that there is plenty of the product to be had, it is probable that there will be no increasing of the price. As a matter of fact Sanitary Engineer understands that there has been a strong bid for existing business, and this keen competition has served to secure for buyers a favorable price.

Bath tubs, roll rim, 4, 4½, 5 feet, 24 to 30 in. wide	$37 05
Bath tubs, 5½ ft.	41 20
Lavatories—	
17x10" Apron F139 or P4045	11 05
18x24" Apron F154 or P3845 or P3847.	17 00
18x21" Apron F169 or P4205	12 70
18x21" Roll rim F197, F199 or P4655-6	11 10
17x19" Roll rim F241 or P4345	9 05
Sinks, roll rim, 18 x 30 in.	16 60

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00

Range Boilers Held on Unchanged Basis

Montreal.

RANGE BOILERS. — There is a steady outturn of boilers to the trade and the market undertone remains steady and the price unchanged. Materials are not plentiful but there appears to be no immediate prospect of any serious shortage. Standard are selling at $15 each, and ex. heavy at $18, for the 30-gallon size.

Range Boilers—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Old Material Has Some Better Outlook

Montreal.

OLD MATERIAL. — Those buying old material will be interested in knowing that there has been an improved demand from outside sources. This applies more to heavy melting steel and heavy scrap rather than to the light grades. Lead scrap is steady and unchanged, and with so great a demand for the virgin pig there will perhaps be a chance to obtain good prices for the old product.

DEALERS' BUYING PRICES

Pipe scrap	....	16 00
No. 2 busheling	12 50	13 50
Stove plate, per ton	....	27 00
Yellow brass	0 10	0 11
Red brass	0 17	0 18
Light brass	0 08	0 09
Scrap zinc	0 07	0 08
Heavy copper	....	0 18
Wrought iron, No. 1, per gr. ton	....	22 00
Heavy melting steel	....	22 00
Heavy lead	0 06	0 07
Tea lead	....	0 03½

Waste Prices May Continue to Hold

Montreal.

COTTON WASTE.—Prices are held steadily on various wastes, and there is a fair sale, though nothing usual is to be reported. Steamboat demands at this season of the year are naturally greater, and this helps make a large demand in general for various grades.

Compression Work Is Held; No Change

Montreal.

While there has been no unusual demand for compression work, the amount of jobbing at present in hand calls for a great amount of cocks, etc., in the aggregate. Raw supplies for manaufacturing have come to hand in the necessary quantities and there is no shortage.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%

Valve Lists Remain Steady and Unchanged

Montreal.

VALVES.—No changes in the way of quotations have been made on valves and basin cocks, radiator valves, etc. These are in fair demand and there is no shortage of stock. Discounts apply as per the following list.

Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Steady Basis Here For Soil Pipe

Montreal.

SOIL PIPE.—Prices are steady and unchanged on soil pipe and there has been a steady condition all around. The trade will be able to obtain supplies of this more readily than those of other grades and lines of pipe, and work that is anticipated this fall will scarcely suffer for lack of the necessary soil pipe. The same applies to soil pipe fittings.

SOIL PIPE (Medium and extra heavy)—Net.
2-3-5 and 6-inch, add 10% to list.
FITTINGS—
4-inch, net list.
2 to 6 inch, fittings, 20% discount.
8 inch pipe and fittings, add 20% to the list.

Not Easy Matter to Obtain Fittings

Montreal.

FITTINGS.—As far as cast fittings of various styles and sizes are concerned, there is little delay in filling orders. When it comes to malleables it is a different question, for all malleable goods are so heavily in demand that shortages of such products are quite common. The undertone on these is firm and higher prices still might be made effective.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	Plus 50%
Do., 2½-in. and larger	8%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Lead Products Held Without Change

Montreal.

LEAD PRODUCTS.—There is a fair demand for these from the trade and prices are held without change.

Lead pipe, per 100 lbs.	17 00
Lead waste, per 100 lbs.	18 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	List plus 30%
Lead wool, lb.	0 16
Lead sheets, 2½ lbs.	0 14
Lead sheets, 3 to 3½ lbs. sq. ft., lb	0 13¼
Do., 4 to 8 lbs., sq. ft.	0 13
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 37½
Solder, strictly, lb.	0 35½
Solder, commercial, lb.	0 33
Solder, wiping, lb.	0 32¾
Wire solder—	
40-60	0 37½
45-55	0 39¾
50-50	0 42¼
Zinc sheets, casks	0 16½
Do., broken lots	0 17

Little Change on the Ingot Metals

Montreal.

INGOT METALS. — Prices have changed but little on any of the ingot metals. There is a fair sale for them and demand for one or two is even greater than supply.

COPPER.—This holds unchanged at 24 cents for casting grade and at 24½ cents for electrolytic. There is a fairly seasonable demand.

TIN.—While talk of a new war unsettled the undertone in London circles, there is a better tone now. Local prices hold at 58 to 60 cents per pound.

LEAD.—There has been some difficulty in getting large tonnage of this, although there appears to be ample stock held locally. Prices hold at 10¼ to 10¾ cents.

SPELTER.—Rather firm and steady, with quotable basis unchanged at 11 cents per pound.

ANTIMONY.—Some report this firmer and according to grade the basis is given as 12 to 16 cents per pound.

ALUMINUM.—Little feature on this item which is quoted at 37 to 39 cents.

TORONTO

TORONTO, August 16.—Certain increases in prices are noted this week, and present conditions indicate the probability of still higher quotations on many lines. Conductor pipe and eavestrough has been advanced another 10 per cent., and while many of the prices of the heavy lines manufactured from iron and steel have not been changed, present quotations are but nominal, as stocks of these commodities are so scarce. Enamelled ware, closets, baths and sinks remain firm. No special shortage is reported in brass ware and compression goods. Oakum and cotton waste are steady in price. Lead and zinc products are firm. The market in ingot metals is quieter, with weaker tendencies. Business for the time of the year is reported good and jobbers state they have had all they could handle with reduced stocks. The scarcity continues with sheets, both black and galvanized, and no improvement is in sight. Boiler plates and tubes are also very scarce and men in the trade say they have never known stocks so low as they are at the present time.

Transportation troubles and shortage of fuel are given as the main causes of the inability to get supplies. Labor has been more plentiful, but an early improvement in deliveries is not anticipated.

Boiler Tube Prices Nominal; Stocks Light

Toronto.

BOILER TUBES.—Stocks of these are at an extremely low level, and prices quoted are purely nominal as supplies are so difficult to get.

No expectation is held of any early improvement in the situation, and dealers do not expect prices to decline any, in fact, considerable advances would not surprise them.

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	.....
1¼ inch	32 00	.....
1½ inch	33 00	.....
1¾ inch	35 00	.....
2 inch	37 00	32 00
2¼ inch	33 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	98 00	63 00

Valves and Bibbs Remain Unchanged

Toronto.

VALVES AND COMPRESSION GOODS.—The demand for these continues to be fair with no particular shortage noticed in these goods. Prices on the better known lines are given.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Sundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Enamelware Quieter; Prices Firm

Toronto.

ENAMELWARE. — The market in enamelled goods is quieter, though a fair amount of business is being done for what is always a slack season of the year. Prices are unchanged, but with material so scarce, and the increase in freight rates, an adjustment is not regarded as unlikely.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4045			11 05
18x24" Apron F154 or P3845 or P3847			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9 05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00
Steel Baths with Steel Rim—			
4 ft. 6 in.			$16 25
5 ft.			16 25
Enameline Baths with Steel Rim—			
4 ft. 6 in.			$15 75
5 ft.			15 75
5 ft. 6 in.			16 25
6 ft.			17 50

Conductor Pipes and Eavestrough Up 10%

Toronto.

CONDUCTOR PIPE. — An advance has been made this week on Conductor Pipe, Eavestroughing, etc.

The increase is 10 per cent. above previous prices, making present price 25 per cent. above list. Materials are reported to be very scarce, and though business is said to be fair, dealers state they could do more if they had the goods. Prices as below:

PIPE (Conductor)

Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in.	$6 90	15-in.	$12 50
10-in.	7 70	18-in.	16 00
12-in.	9 10		

Add 25% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

12½% Advance Corrugated Sheets

Toronto.

CORRUGATED SHEETS. — An important announcement is made to the effect that 30-inch sheets have been adopted as the standard size of material for manufacturing corrugated iron in all gauges lighter than 24. Corrugated iron in all gauges lighter than 24, made from wider sheets than 30-inch, carry extra list price of 75 cents per 100 square feet. This ruling goes into effect at once, but does not affect orders now on hand.

The scarcity of material continues and it is very difficult to get delivery of sheets. The advance approximates 12½ per cent., and new prices are given below.

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	11 00
No. 26 gauge	12 00
No. 24 gauge	17 00
No. 22 gauge	20 00

Wrought Pipe Continues Scarce

Toronto.

WROUGHT PIPE. — But little trading appears to be the rule in black and galvanized iron pipe. Supplies are low and deliveries hard to get. No improvement is noted yet in regard to transportation and raw material situation. Skelp continues scarce and cost of production is expected to be higher when increased freight rates go into effect at the end of this month on American railroads. Present prices are given herewith:

Standard Buttweld Pipe
List No. 46
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	23.74

2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.75	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
2	$32.01	$38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2.66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4.39	4.39	5.21

Soil Pipes and Fittings Scarce

Toronto.

SOIL PIPES AND FITTINGS.—The scarcity of these continues to be pronounced. Very few supplies are coming to hand and low stocks are reported everywhere. An extra large demand was in evidence earlier in the season, and with smaller shipments than usual from the factories, stocks are very much depleted. Prices hold firm and may be higher shortly.

Closet Bowls and Combinations Firm

Toronto.

CLOSET BOWLS. — A good demand has been experienced for closet bowls and closet combinations, and while a tendency towards higher prices is noted, previous quotations are still in force. Deliveries have been, on the whole, fairly satisfactory and no particular shortage is reported.

Plumbers' Oakum Remains Firm

Toronto.

PLUMBERS' OAKUM.—A fair demand is observed for plumbers' oakum, and price remains unchanged. It is being quoted at $5.00 per bale.

Prices Cotton Waste Hold Steady

Toronto.

COTTON WASTE.—The demand for cotton waste continues to show improvement with prices sustained. No shortage is reported and no decline in prices is expected, while raw material remains round its present spot price. Following are present prices:

WASTE	
Cream, Polishing	0 28
WHITE	
XXX	0 24
XX	0 22½
X	0 20
XC	0 18½
Japanese	0 17
XXX	0 24
XX, grad.	0 22½
XLCR	0 21
X Empire	0 19½
X Press	0 17½
X Special	0 15½
COLORED	
No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 19
Lion	0 17
Standard	0 15
Popular	0 13
Keen	0 11

Above lines subject to trade discount for quantity.

Asbestos Products Show Firmness

Toronto.

ASBESTOS PRODUCTS. — The various lines of asbestos products, including pipe and boiler coverings, packing, gaskets and asbestos fire-clays and cement, are said to be moving freely and prices continue firm.

Lessened Dealing in Waste Materials

Toronto.

WASTE MATERIALS. — Trading is not reported as being as brisk as usual in waste materials. Dealers state there is a holding back, but do not expect any change of prices in an upward direction. They express belief that the worst of the traffic tangle has been passed through and anticipate an improvement of business from now on.

DEALERS' BUYING PRICES

Pipe scrap	11 00
No. 2 busheling	13 00
Stove plate, per ton	28 00
Yellow brass	0 10
Red brass	0 15¾
Light brass	0 07
Med. brass	7 75
Scrap zinc	6 00
Heavy copper	0 17
Overshoes, lumbermens rubber boots	0 04
Bicycle tires	0 01½
Automobile tires	0 02½
Heavy lead pipe	0 05¾
Heavy melting steel	15 00
Light copper	0 14
Heavy copper	0 17
Aluminum	0 20
No. 1 machinery cast	33 00
Wrought iron, No. 1, per gr. ton	15 00
Tea Lead	0 05
Heavy lead pipe	0 06
Old rubbers, boots and shoes	0 06

Eavestrough Now Quoted 25% Above List

Toronto.

EAVESTROUGH.—Another advance has been made on eavestrough and elbows. The next quotations are 25 per cent. above list.

The present scarcity of galvanized sheets is restricting the supply of these goods, and, with conductor pipe, small stocks only are the rule.

WINNIPEG

A VERY good trade is still being done in the plumbing and steamfitting business. A much larger amount of sales would be realized if it were not for the inconvenience of freight transportation. Indications point forward to even worse conditions on account of the new ruling regarding freight facilities, which states that open cars are to be used for the conveyance of coal and the closed or box cars for the shipment of grain. It is also necessary for shippers to secure a permit for the use of freight cars to be used the same day as the permit is issued. If unable to load the car at once the permit is cancelled and the car passed along to another. Prices are still on a very firm basis and the tendency is for still higher prices. The prices on wrought iron pipe have again been revised and all sizes over 4½ inch have been made higher. Stillson wrenches have also been advanced in price and are now quoted at 20 per cent. off the list prices. There is still a great shortage of sheets which affects the manufacturers of many products. Manufacturers are of the opinion that if shipments of raw material do not come forward more promptly the scarcity for this commodity may be more serious. English manufacturers seem to be gradually becoming better equipped to handle export business and fair shipments of closet bowls have been received during the past few weeks, which brightens up the situation a little. Range boilers have again been boosted in price and are still scarce. They are hard to procure in large quantities, due to the inability of the manufacturers to secure raw material and other factors. Supply houses are looking forward to a busy trade for the approaching season in enamelled ware, as they anticipate a very big demand for this commodity. Lead and zinc products are firm in price and not much buying is being done on account of the price being so high and stocks are sufficient for the demand.

The crops of the West are reported good generally and a good fall trade is looked forward to. Collections are improving and it is expected in a very short time conditions now prevailing will be somewhat better.

Cast Iron Soil Pipe Again Advanced

Winnipeg.

SOIL PIPE.—Another revision has been made in cast iron soil pipe quotations, the new prices being on a still higher level than previous quotations. There is still a scarcity of some sizes of soil pipe, although fair shipments are still being sold The shortage is mainly due to the manufacturers not being able to procure raw material and the cost of raw material has increased, necessitating this higher revision of prices.

The following are the new quotataions: 2 and 3-inch, 15 per cent. advance; 4-inch, 5 per cent. advance; 5 and 6-inch, 15 per cent. advance; 8-inch, 25 per cent. advance.

Range Boilers Higher; Still Scarce

Winnipeg.

RANGE BOILERS.—A little more than a 10 per cent. advance has been made on the price of range boilers. They are still hard to procure in quantities, no doubt due to the manufacturers' inability to keep up with the demand on account of the shortage of raw material and other parts.

The following are the present quotations:

30	gallon	$15.00
35	gallon	17.50
40	gallon	20.40
52	gallon	27.20
66	gallon	35.00
82	gallon	48.00
100	gallon	62 00
120	gallon	77 00

Higher Revised Prices For Stillson Wrenches

Winnipeg.

WRENCHES.—Higher prices have again been made on the Stillson wrenches. The new quotations are approximately 7½ per cent. higher than last week. The discount for Stillson pattern is 25 per cent. and the discount for the Genuine Stillson is 20 per cent. off the list.

STILLSON WRENCHES

6	inch	each	$2 00
8	inch	"	2 25
10	inch	"	2 50
14	inch	"	3 50
18	inch	"	5 00
24	inch	"	7 25
36	inch	"	13 50

Cast Iron Drainage Fittings 5% Higher

Winnipeg.

DRAINAGE FITTINGS. — The new quotations on drainage fittings are approximately 5 per cent. higher. Some sizes are still scarce due to the unsettled general conditions on the market.

The discount quoted this week for drainage fittings is 15 per cent. off the list.

New Higher Price on Adjustable Sink Traps

Winnipeg.

SINK TRAPS.—A new list price has been established on adjustable sink traps. The new list is $3.00 and are quoted at net list.

Price Firm on Hoyt Babbitt Metal

Winnipeg.

BABBITT.—The prices of Hoyt Nickel Babbitt is steady and the demand is fair.

This week's quotation is 80 cents per pound.

Desolvo Quoted at $6.70 Per Dozen

Winnipeg.

DESOLVO. — This particular line for cleaning pipes and traps, etc., is having a good demand and the stock is in fair shape.

Plumbers' Oakum Firm; Price Steady

Winnipeg.

OAKUM. -- The present stock of oakum is fair and the demand is good but not excessive. The following are the present quotations:

In bale lots, $7.75 per bale; in small lots, 16½ cents per pound.

Cotton Waste Prices Remain Steady

Winnipeg.

COTTON WASTE. — The price remains firm on cotton waste with a tendency for higher quotations. The harvesting of the new crop may have some material effect on the present situation.

The following are the quoted prices:

White, in bale lots, $21.50; less than bales, $22.50 per 100 pounds.

Colored, in bales, $17.00; less than bales, $18.00.

Eavestrough, Conductor Pipe, Etc., Are Higher

Winnipeg.

CONDUCTOR PIPE, ETC. — There is a great scarcity of galvanized sheets which is a serious matter for the manufacturers of these lines, and the result is that limited quantities are procurable. The present day prices are higher and still higher quotations are looked forward to if the situation is not soon relieved by shipments of raw material.

The following are the quotations:

Conductor Pipe—Galvanized

2	in.	$ 9 23
3	in.	11.25
4	in.	14.40
5	in.	19.80

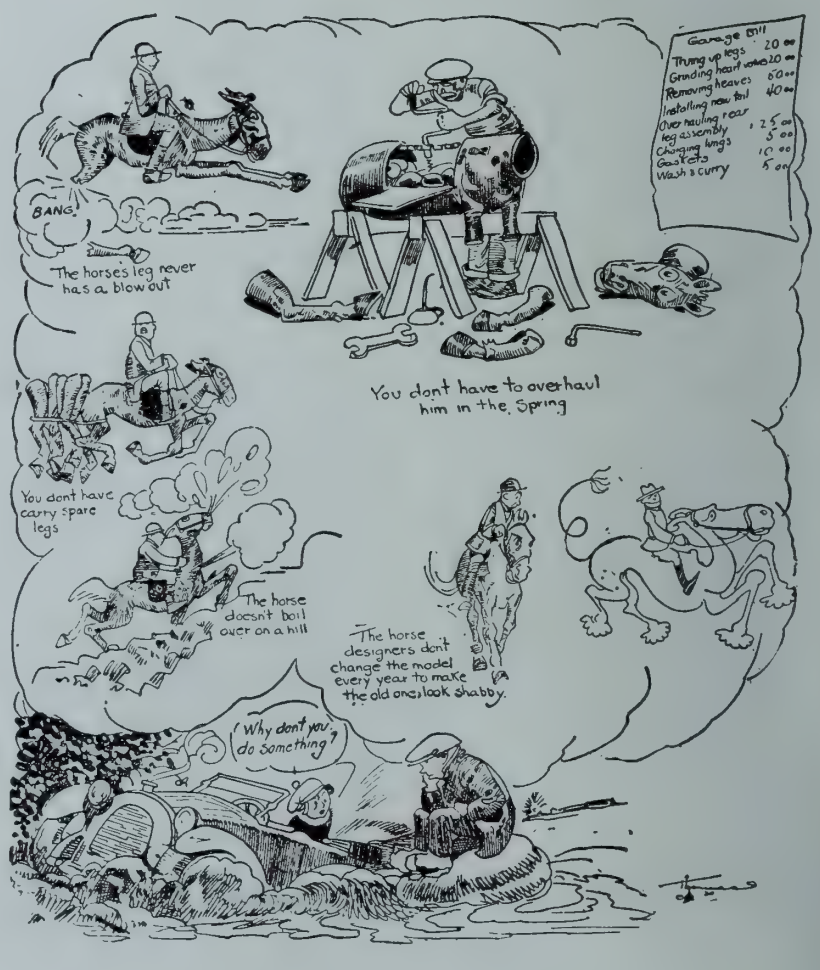
Eavestrough—Galvanized

	O. G. Sq. Bend	Hlf. Rd. Gutter
8 in.	$ 7.60	$ 7.92
10 in.	8.33	8.73
12 in.	9.68	10.08
15 in.	13.50	14.14

Conductor Elbows

2	in.	$ 2.70
3	in.	3.02
4	in.	4.73
5	in.	12.60

When a Motorist Loves a Horse


Garage Bill
Truing up legs 20 00
Grinding heart cams 20 00
Removing heaves 60 00
Installing new tail 40 00
Overhauling rear leg assembly 25 00
Changing lungs 5 00
Gaskets 10 00
Wash & curry 5 00
BANG!
The horses leg never has a blow out
You dont have to overhaul him in the Spring
You dont have carry spare legs
The horse doesn't boil over on a hill
The horse designers dont change the model every year to make the old ones look shabby.
(Why dont you do Something?)

MADE IN CANADA

MUELLER

Nickel Plated

Adjustable Basin Traps

With Cast Parts

We offer N.P. Adjustable Basin Traps, S. and P., Plain and Vented, in 1¼" size, for prompt shipment.

Mueller Traps combine:

Beauty of Design,
Quality of Material
and Finish.

WE MAKE MUELLER

Basin and Bath Trimmings, Bibbs, Sill Cocks, Ferrules, Curb or Service Cocks, Corporation Cocks, Tapping Machines for Water and Gas, Service Clamps; Regulators and Reducing Valves for Water, Air, Steam and Oil; Bubbling Fountains, Gas Cocks, Globe, Angle and Check Valves, Etc. Forgings in Brass; Castings in Brass, Bronze and Aluminum; Specialties for Automobile Companies, including Bronze Bushings, Gasoline Cocks, Etc.

H. Mueller Mfg. Co., Ltd.

SARNIA
CANADA

MANUFACTURERS OF HIGH GRADE MUELLER WATER PLUMBING AND GAS BRASS GOODS

6 in.	14.85

Conductor Shoes

2 in.	$ 3.25
3 in.	3.78
4 in.	5.63
5 in.	14.95
6 in.	16.20

Steady Prices on Lead and Zinc Products

Winnipeg.

LEAD AND ZINC PRODUCTS. — There has been practically no change in the prices of lead and zinc products. This is probably due on account of the quietness of the basic demand for these products at this time, due of course to this season of the year, which is a normal condition.

The following are the quotations on some of the well-known lines:

Lead pipe	$16.11 per 100 lbs.
Lead waste	$17.01 per 100 lbs.
Lead scaps and bends	35 p.c. adv. on list
Lead sheets	in full rolls, 14c per lb.
Solder, strictly	in full cases, 48c. per lb.
Solder, wiping	in full cases, 46c per lb.
Zinc sheets	25c. per lb.

Wrought Iron Pipe Prices Revised Upwards

Winnipeg.

WROUGHT PIPE. — A still further advance has been made on wrought iron pipe quotations. The scarcity of some sizes continues to be very pronounced. If the present day conditions do not soon change as regards the scarcity of skelp and raw material, as well as the great difficulty of securing supplies of fuel and better freight transportation, the price is sure to take another jump higher.

The following is a list of the new net prices:

BLACK PIPE
f.o.b.

Size ins.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat. Add to Winnipeg price	Saskatoon Add to Winnipeg price	Regina Add to Winnipeg price	Brandon Add to Winnipeg price
⅛	$ 6.17	$ .25	$ .16	$ .14	$ .09
¼	5.76	.43	.28	.24	.15
⅜	5.90	.57	.37	.31	.20
½	7.88	.85	.55	.47	.30
¾	9.77	1.14	.73	.62	.40
1	14.40	1.68	1.09	.92	.59
1¼	19.53	2.29	1.46	1.24	.79
1½	23.40	2.73	1.75	1.48	.94
2	31.50	3.68	2.35	1.99	1.27
2½	50.94	5.82	3.73	3.16	2.01
3	66.60	7.62	4.90	4.15	2.64
3½	84.60	9.20	5.85	4.95	3.15
4	99.90	10.89	6.93	5.87	3.74
4½	119.25	12.64	8.12	6.87	4.38
5	139.05	14.81	9.43	7.98	5.08
6	180.00	19.19	12.20	10.32	6.57
7	263.70	23.77	15.13	12.80	8.15
8L	277.20	25.00	16.25	13.75	8.75
9	382.50	34.19	21.91	18.54	11.80
10L	354.60	32.00	20.80	17.60	11.20

Galvanized Pipe

Size Ins.				
⅛	$ 8.64	$ 0.25	$ 0.16	$ 0.14	$ 0.09
¼	8.10	.43	.28	.24	.15
⅜	8.24	.57	.37	.31	.20
½	9.50	.85	.55	.47	.30
¾	12.06	1.14	.73	.62	.40
1	17.82	1.68	1.09	.92	.59
1¼	24.12	2.29	1.46	1.24	79
1½	28.80	2 73	1.75	1.48	.94
2	38.84	3.68	2.35	1.99	1.27
2½	63.00	5.82	3.73	3.16	2.01
3	82 80	7.62	4.90	4.15	2.64
3½	103 50	9 20	5.85	4.95	3.15
4	122 40	10.89	6.93	5.87	3.74
4½	146.70	12 64	8.12	6.87	4.38
5	171.00	14.81	9.43	7.98	5.08
6	222.30	19.19	12 20	10.32	6.57
7		23.77	15.13	12 80	8.15
8		25.00	16 25	13.75	8.75

Wholesale

Terms in all cases 2 per cent. 30 days, or net

Useful Information

TABLE OF WEIGHTS AND MEASURES

LONG MEASURE

12 Lines	1 Inch
12 Inches	1 Foot
4 Inches	1 Hand
3 Feet	1 Yard
6 Feet	1 Fathom
5½ Yards	1 Rod or Pole
40 Rods	1 Furlong
8 Furlongs	1 Mile
3 Miles	1 League
69½ Miles	1 Degree
1,760 yards or 5,280 feet	1 Mile
6,075.81 Feet	1 Nautical Mile

SQUARE OR LAND MEASURE

144 Square Inches	1 Sq. Foot
9 Square Feet	1 Sq. Yard
30¼ Yards	1 Sq. Rod
40 Poles or Rods	1 Rood
4 Roods	1 Acre
640 Acres	1 Sq. Mile

CUBIC OR SOLID MEASURE

1,728 Inches	1 Solid Foot
27 Feet	1 Solid Yard
42 Feet	1 Ton Shipping
128 Feet	1 Cord Wood

LAND SURVEY MEASURE

7.92 Inches	1 Link
100 Links	1 Chain
1 Chain	66 Feet
10 Square Chains	1 Acre

ENGLISH MONEY TABLE

4 Farthings	1 Penny
12 Pence	1 Shilling
20 Shillings	1 Pound

AVOIRDUPOIS WEIGHT

16 Drams	1 Ounce
16 Ounces	1 Pound
14 Pounds	1 Stone
25 Pounds	1 Quarter, C
28 Pounds	1 Quarter, E
4 Quarters	1 Hundredweight
20 Hundredweight, 2,000 lbs., Can., 2,240 lbs., Eng.	1 Ton

PAPER

24 Sheets	1 Quire
20 Quires	1 Ream

APOTHECARIES' WEIGHT

20 Grains	1 Scruple
3 Scruples	1 Dram
8 Drams	1 Ounce
12 Ounces	1 Pound

TROY WEIGHT

24 Grains	1 Pennyweight
20 Pennyweights	1 Ounce
12 Ounces	1 Pound

CLOTH MEASURE

2¼ Inches	1 Nail
4 Nails	1 Quarter
3 Quarters	1 Flemish Ell
4 Quarters	1 Yard
5 Quarters	1 English Ell
6 Quarters	1 French Ell
37 Inches	1 Scotch Ell

MEASURE OF CAPACITY

4 Gills	1 Pint
2 Pints	1 Quart
4 Quarts	1 Gallon
9 Gallons	1 Firkin
36 Gallons	1 Barrel
63 Gallons	1 Hogshead

DRY MEASURE

2 Pints	1 Quart
4 Quarts	1 Gallon
2 Gallons	1 Peck
4 Pecks	1 Bushel
36 Bushels	1 Chaldron

TIME MEASURE

60 Seconds	1 Minute
60 Minutes	1 Hour
24 Hours	1 Day
7 Days	1 Week
4 Weeks	1 Month
12 Months, or 365¼ Days	1 Year
100 Years	1 Century

DAYS IN THE MONTH

30 days hath September,
April, June and November;
February has 28 alone,
And all the rest have 31;
But Leap Year coming once in four,
February then has one day more.

Can you tell definitely just how much hard, cold cash those show windows of yours will earn you every day, month, year? Here's a test that will accurately weigh their profit-making possibilities for you: Select goods that you are anxious to dispose of—preferably one line. Make a price on them so that they are a real bargain. Display them attractively in your show window with catchy cards contrasting the past and present prices. So as to be able to definitely check returns, do not advertise these particular goods in any other way. And then when these goods are sold, figure out the profit they made you at the bargain prices. Divide the amount by the number of days the goods were in the window, and the result will represent the earning power of your windows.

HERE'S A GOOD ONE

A Dutch pastor makes it a point to welcome any strangers cordially, and one evening after the completion of the service he hurried down the aisle to station himself at the door.

A Swedish girl was one of the strangers in the congregation. She is employed as a domestic in one of the fashionable homes, and the minister, noting that she was a stranger, stretched out his hand.

He welcomed her to the church and expressed the hope that she would be a regular attendant. Finally he said that if she would be at home some evening during the week he would call.

"T'ank you," she murmured bashfully, "but Ay have a fella."—Atlanta Journal.

Heats Water in a Minute

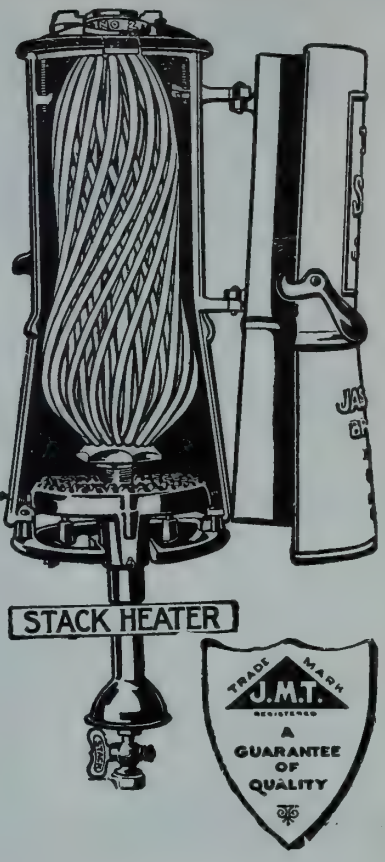
STACK HEATER

Less Gas

The network of small pipes exposed to the hot gas flame will heat water quicker than it would in one large pipe because of the greater heating surface offered. Heats water in a minute; show your prospect. No technical knowledge is necessary to see the advantages of the Stack Heater.

Best for you. Best for your customer.

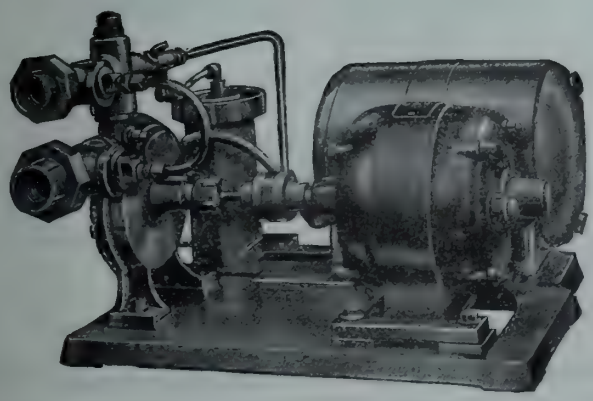
Send for a Stack Heater Display Card



The James Morrison Brass Mfg. Co., Limited

93-97 Adelaide Street West, Toronto, Ontario

The Farmer is Badly in Need of the *Westco* Tankless Water System



See it at Toronto Exhibition

Aggressive salesmen and progressive dealers are always looking for a good selling and profitable line to handle. A splendid place to find good selling lines is the Canadian National Exhibition, Toronto, where almost every modern appliance will be on exhibition. Nowhere in all the grounds will you find an article with greater selling possibilities than the Westco Tankless Water System.

It abounds with selling points, features that are vitally interesting to farmers, suburbanites and rural residents. These are some:

(a) Needs no storage tank; pumps water direct from well to taps.
(b) Low cost to buy, install, maintain and operate.
(c) Entirely automatic; turn tap and pump starts at once; close tap, pump stops.
(d) Runs off farm lighting plant or central station power.
(e) Has no valves, no gears, no belt.
(f) Pump has only one moving part—rarely needs attention.
(g) Pumps from 300 to 500 gallons per hour.
(h) Weighs less than 100 pounds.
(i) Uses less than electric iron while supplying water to four faucets.

There is a fine field for aggressive salesmen selling the Westco System. Can you afford to ignore the possibilities it holds out? You will find it at the west end of the Machinery Hall.

Westco Pumps, Limited

707 Yonge Street, Toronto

WILLIAMS' SUPERIOR DROP-FORGED WRENCHES

Better tools make better workmen—

And you can't buy a better wrench then a Williams'

J. H. WILLIAMS & CO.
"The Wrench People"

77 So. Clinton St. CHICAGO, ILL.
77 Vulcan St. BUFFALO, N.Y.
77 Richards St. BROOKLYN, N.Y.

Western Canadian Agents: W. Bruce Campbell, 77 Confederation Life Bldg., Winnipeg, Can.

GURNEY-OXFORD

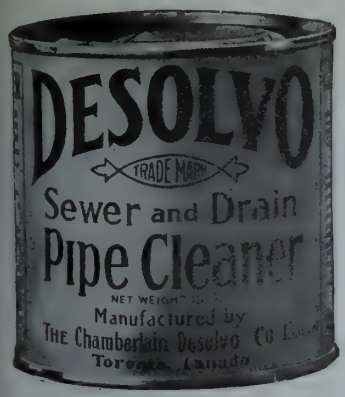
BOILERS AND RADIATORS

are made in all sizes for all requirements.
Their installation will give everyone satisfaction.

The GURNEY FOUNDRY COMPANY, Limited

TORONTO -- CANADA

BRANCHES—MONTREAL, WINNIPEG, CALGARY, VANCOUVER



A Quick Selling Pair

For all around domestic utility, they appeal to the housewife.
Desolvo clears clogged pipes instantly by heat and chemical action.
K. K. Cleans Closets in a jiffy and makes a disagreeable job pleasant.
Naturally, they sell well and with profit.

Order from your jobber.

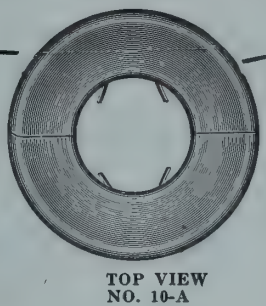
The Chamberlain Desolvo Co., Limited

110 Church St., Toronto

Eastern Canada Representatives:
RICHARDSON & BUREAU
55 St. Francis Xavier St.
Montreal, Quebec
Ontario Representative:
L. F. Mayne,
99 Quebec St., Toronto
Western Representatives:
N. D. McPhail & Co.
1329 Standard Bank Bldg.
Vancouver, B.C.

OPEN VIEW
NO. 10-A

The CEILING PLATE that's better



TOP VIEW
NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾" WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.

Gem No. 4.

Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

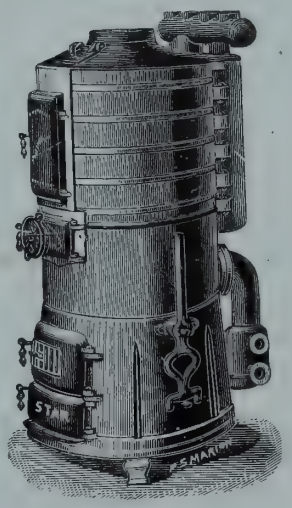
Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.

New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

Thousands of Star Boilers in Use requiring repair Parts



It will be a long time before folks forget the coal troubles of the last few seasons.

The principal feature of the Star Boiler is that no other round hot water boiler has any coal-saving improvement not embodied in the "Star."

Then, too, while boiler installation and repair time is here, why not stock up with Star parts, for which O. Belanger has taken over the rights and is now making?

Many thousands of Star Boilers are in use requiring these repair parts hitherto unobtainable.

Write to us at once in time to catch the season's business.

We guarantee prompt deliveries.

O. BELANGER, REG'D.

Amherst Street
MONTREAL

Wrought Pipe

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Iron Co. Limited

Montreal

AIR CONDITIONING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR RECEIVERS
Wm. B. Scaife & Sons Co., Oakmont, Pa.

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

AIR PRESSURE TANKS
The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

ASBESTOS GOODS
James Morrison Brass Mfg. Co., Toronto.

BOILERS, STEAM OR HOT WATER
The Canadian John Wood Mfg. Co., Toronto.
Gurney Foundry Co., Limited, Toronto.
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N.Y.

BRASS GOODS, VALVES, ETC.
Canadian Brass Co., Ltd., Galt, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Wolverine Ltd., Toronto, Ont.

CELLAR DRAINERS
Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CEMENT
The Northwestern Chemical Co., Marietta, Ohio

CLAMPS "C"
J. H. Williams & Co., Brooklyn, N.Y.

CLOSETS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CONDENSATION UNITS
The Westco Pumps Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DAMPER REGULATORS
C. A. Dunham Co., Ltd., Toronto.

DEHUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

DISCS
The Commercial India Rubber Manufacturing & Supply Co., Ltd., London, Eng.

DRAINAGE FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS
Wm. B. Scaife & Sons Co., Oakmont, Pa.
Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

FLUSHOMETERS
Beaton & Corbin Mfg. Co., Southington, Conn.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Canadian Wolverine Co., Ltd., Chatham.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

FURNACES
Gurney Foundry Co., Limited, Toronto.
Steel & Radiation, Ltd., Toronto.

GASOLINE ENGINES
Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS
Empire Mfg. Co., Ltd., London and Toronto
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

GRATES FOR RANGES, FURNACES AND BOILERS
McIntyre & Taylor, Toronto.

HEAT GENERATORS
Galt Brass Co., Galt, Ont.
James Morrison Brass Mfg. Co., Toronto.

HEATING APPARATUS
C. A. Dunham Co., Ltd., Toronto.

HEATERS
The Hotstream Heater Co., Cleveland, Ohio.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.

HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

HUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

HOIST HOOKS
J. H. Williams & Co., Brooklyn, N.Y.

HOT WATER COILS, DOMESTIC
McIntyre & Taylor, Toronto.

HUMIDIFIERS
B. F. Sturtevant & Co., Hyde Park, Mass.

LAUNDRY TUBS
The Canada Metal Co., Ltd., Toronto.

LEAD
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hoyt Metal Co., Toronto.
James Morrison Brass Mfg. Co., Toronto
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

MACHINISTS' TOOLS
J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS
Gurney Foundry Co., Limited, Toronto.
Fittings Limited, Oshawa.

MIXING VALVES
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

MONKEY WRENCHES
Trimont Mfg. Co., Roxbury, Mass.

PACKING
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

PACKLESS RADIATOR VALVES
Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn
Fittings Limited, Oshawa.

PIPE, BLACK AND GALVANIZED
Canadian Tube & Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd. Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.

PIPE CLEANSER
Borden Canadian Co., Ltd., Toronto.
Chamberlain Desolvo Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Trimont Mfg. Co., Roxbury, Mass.
Wolverine Ltd., Toronto, Ont.

PIPE JOINT COMPOUNDS
Canadian Wolverine Co., Ltd., Chatham
James Morrison Brass Mfg. Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.

PIPE, SOIL, AND FITTINGS
Anthes Foundry Co., Toronto and Winnipeg.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Toronto Hardware Mfg. Co., Toronto.
Warden King, Ltd., Montreal.

PIPE THREADING TOOLS AND MACHINERY
Borden Canadian Co., Toronto.
Greenfield Tap & Die Corporation, Greenfield, Mass.
John Hall & Sons, Ltd., Brantford.
A. B. Jardine & Co., Hespeler.

PIPE WRENCHES
Borden Canadian Co., Toronto.
Trimont Mfg. Co., Roxbury, Mass.
J. H. Williams Co., Brooklyn, New York.

PLUMBERS' TOOLS
J. H. Williams & Co., Montreal, Que.

PNEUMATIC WATER SUPPLY TANKS
Empire Mfg. Co., London and Toronto.
Wm. B. Scaife & Sons Co., Oakmont, Pa.

PORCELAIN WARE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
R. MacDougall & Co., Ltd., Galt.

PUMPS
The Westco Pumps Limited, Toronto.

PUMPING SYSTEMS, AUTOMATIC
The Westco Pumps Limited, Toronto.

RADIATOR FOOT RESTS
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR TRAPS (STEAM)
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

RANGE BOILERS
The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

ROOF FLANGES AND FLASHINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.

SEPTIC TANK VALVES AND SYPHONS
Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SOCKETS, WIRE ROPE
J. H. Williams & Co., Montreal, Que.

SOLDER
Canada Metal Co., Ltd., Toronto.
Hoyt Metal Co., Toronto.

STEAM SPECIALTIES
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
James Morrison Brass Mfg. Co., Toronto.

STEAM TRAPS
C. A. Dunham Co., Ltd., Toronto.

STOVES
Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL
Gurney Foundry Co., Ltd., Toronto.

SMOKE TEST MACHINES
James Morrison Brass Mfg. Co., Toronto.

SWIVELS, HOOK
J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL
The Canadian John Wood Mfg. Co., Toronto.

TESTING PLUGS
James Morrison Brass Mfg. Co., Toronto.

THUMB SCREWS AND NUTS
J. H. Williams & Co., Brooklyn, N.Y.

TOOLS
Wolverine Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., & Co., Brooklyn, N.Y.

UNIONS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

VAPOR HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

VISES, CHAIN, CLAMP, MOUNT
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The four good points that make TRIMO PIPE WRENCHES superior are the SPIRAL SPRING always in place, STEEL FRAMES that will not break, NUT GUARDS that protect adjustment nut and the INSERTED JAW in handle that can be replaced when worn.

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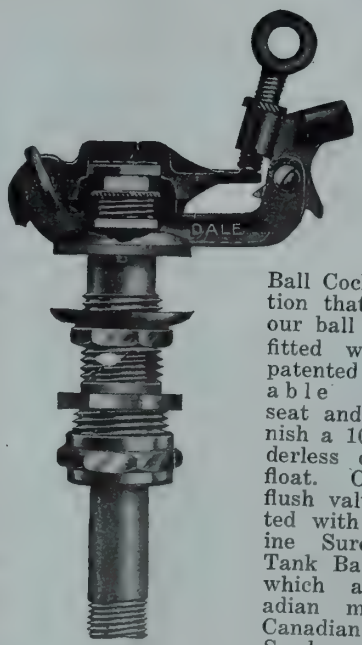

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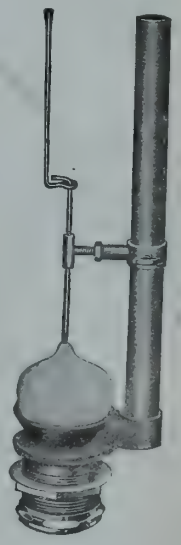
Wolverine Ball Flush Valves and Dale Ball Cocks are a tank combination that cannot be beaten, all our ball cocks are fitted with our patented removable porcelain seat and we furnish a 10 oz. solderless copper float. Our ball flush valve is fitted with Wolverine Sure Seat Tank Ball, all of which are Canadian made for Canadian trade. Send your enquiries to



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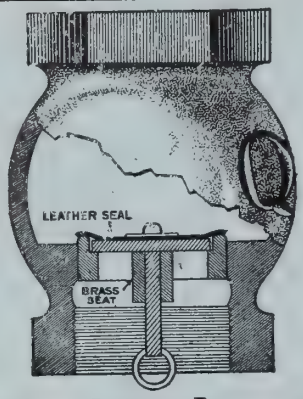

This is a "Q" Foot Valve

And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

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Brass Base

Made from the best brass with cast brass base. Screwed and soldered on, and equipped with high-grade carbon. All valves tested before shipping. The Heating Engineer's favorite valve.

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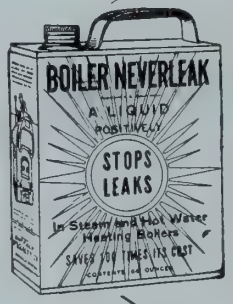

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Only Preparation Sold on a Million Dollar Guarantee

BUFFALO SPECIALTY CO.

352 Ellicott Street, Buffalo, N. Y.

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Recommend Riveted Range Boilers, the kind that stands the test of time, not the flashy kind that appears good for the first year or two and then gives out.

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Of Course There Are Good Reasons

Why Over 28,000 Plumbers and Fitters Stick to "X" Boiler Liquid!

A HARD headed bunch are the plumbers and fitters. They don't part with their money so easily—nor for any sentimental reasons.

When they buy a product they must know that it *delivers the goods!*

The 28,000 or more men who buy and use "X" Liquid know that it *makes good* with a remarkable degree of regularity.

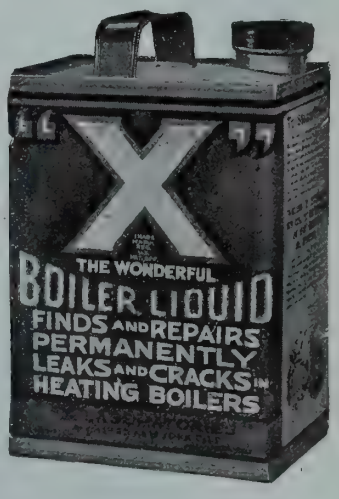
They know that "X" Boiler Liquid will repair leaks or cracks as permanently as welding—in a small part of the time welding takes—at a small part of the cost of welding or replacing—and at a *greater profit,* all things considered.

They know, furthermore, that "X" Boiler Liquid, in addition to making permanent repairs that stand 2,000 pounds pressure, will clean out Rust and Scale in any part of the system where the water circulates. And "X" Boiler Liquid will prevent new Rust or Scale from forming.

Properly used, "X" Boiler Liquid will add as much as $1,000 extra to a man's yearly profits.

The fact that "X" is the original Boiler Liquid and is now the biggest selling product, simply emphasizes that its leadership is founded upon merit.

Beware of Imitations!



It's an old story—every excellent product that is a *leader* has a lot of "me-too" products trailing along. That's why it's safe for the busy plumber or fitter to write his order plainly—"X" Boiler Liquid. And to be sure you're not getting a cement, or meal, but a *scientific process that prevents foaming* look for the "X" on every can before it is sent to the job. That's the *surest* way to avoid disappointment.

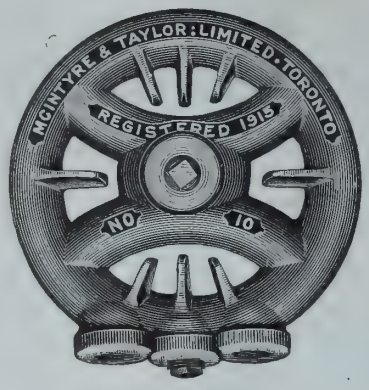
Every good jobber sells "X" Liquid; 99 out of every 100 manufacturers of boilers and radiators recommend, use and sell it.

Ask your jobber

"X" LABORATORIES

25 W. 45th Street, New York City

Boston San Francisco



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Liquid and Powder Form.
Packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans; 100 and 250-lb. barrels. Ask your jobber for prices or write us direct.
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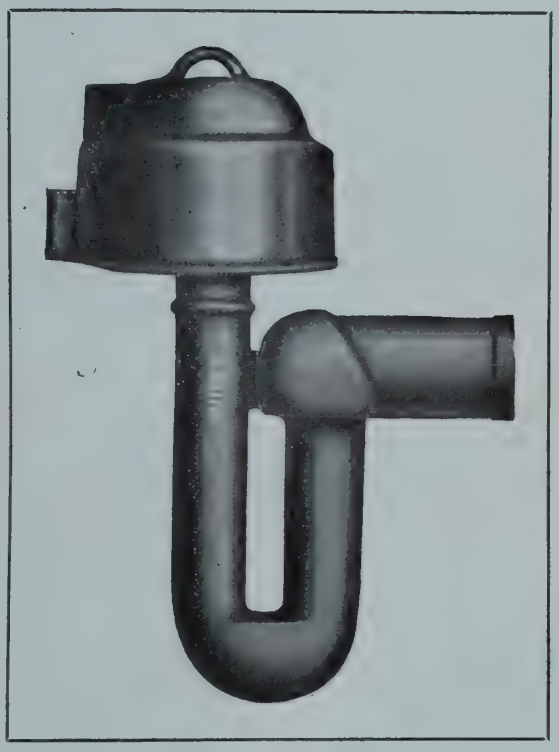
Many farms are idle and others are not worked to capacity owing to the difficulty of retaining help in the country.

In industrial centres it is not only obligatory by law, but employees demand that factories be equipped with up-to-date sanitary installations.

The "Anthes" Syphon does for the farmer what large sewer construction does for the city dweller.



Convince the farmer that the comfort of himself, his family and his help depend upon it.

This Syphon is a capital investment on the farm: and not a luxury.

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CAST IRON SOIL PIPE AND FITTINGS

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VITRO NO TROUBLE TANK

Satisfaction Brings Repeat Orders

THERE is no royal road to success, but the satisfaction of your customers will smooth out a good many of the bumps. Satisfaction begets confidence, and confidence is the root of all profitable business.

A few thousand keen-minded plumbers must have discovered this, judging by the number of VitrO Tanks that were sold last year.

Things don't go wrong with the VitrO Tank—they **can't**—VitrO isn't made that way. Every tank that passes the inspector is 100% efficient. It must pass the severest tests of endurance and is backed by our absolute guarantee.

VitrO Tanks are finished in sparkling white and golden oak, easily kept clean and of lasting beauty.

Write us now for VitrO catalog and descriptive literature—it will help you considerably in selecting your fixtures.

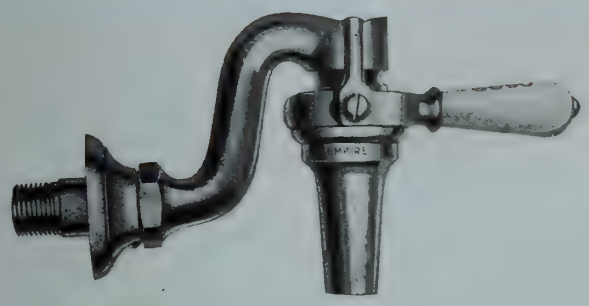
GALT BRASS CO. LIMITED.

Galt - Canada

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, SEPTEMBER 1, 1920 No. 17



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A Factory Back of a Faucet.

This "Kitchener" No. A-237 packless, quick-opening faucet was designed specially for kitchen sink, and laundry tubs where quick, easy operation and the absence of splashing is desirable. A half-turn of the lever turns on a full, solid stream that does not spread or splatter. This faucet requires no packing and is highly recommended for the above purpose.

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The Empire organization is back of every product—and at YOUR SERVICE, and our products are handled by the leading jobbers throughout Canada. Ask for them.

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is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

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THE BEST STEEL SHEET MADE TO-DAY

A RENOWNED PURE IRON SHEET UNEQUALLED FOR DURABILITY

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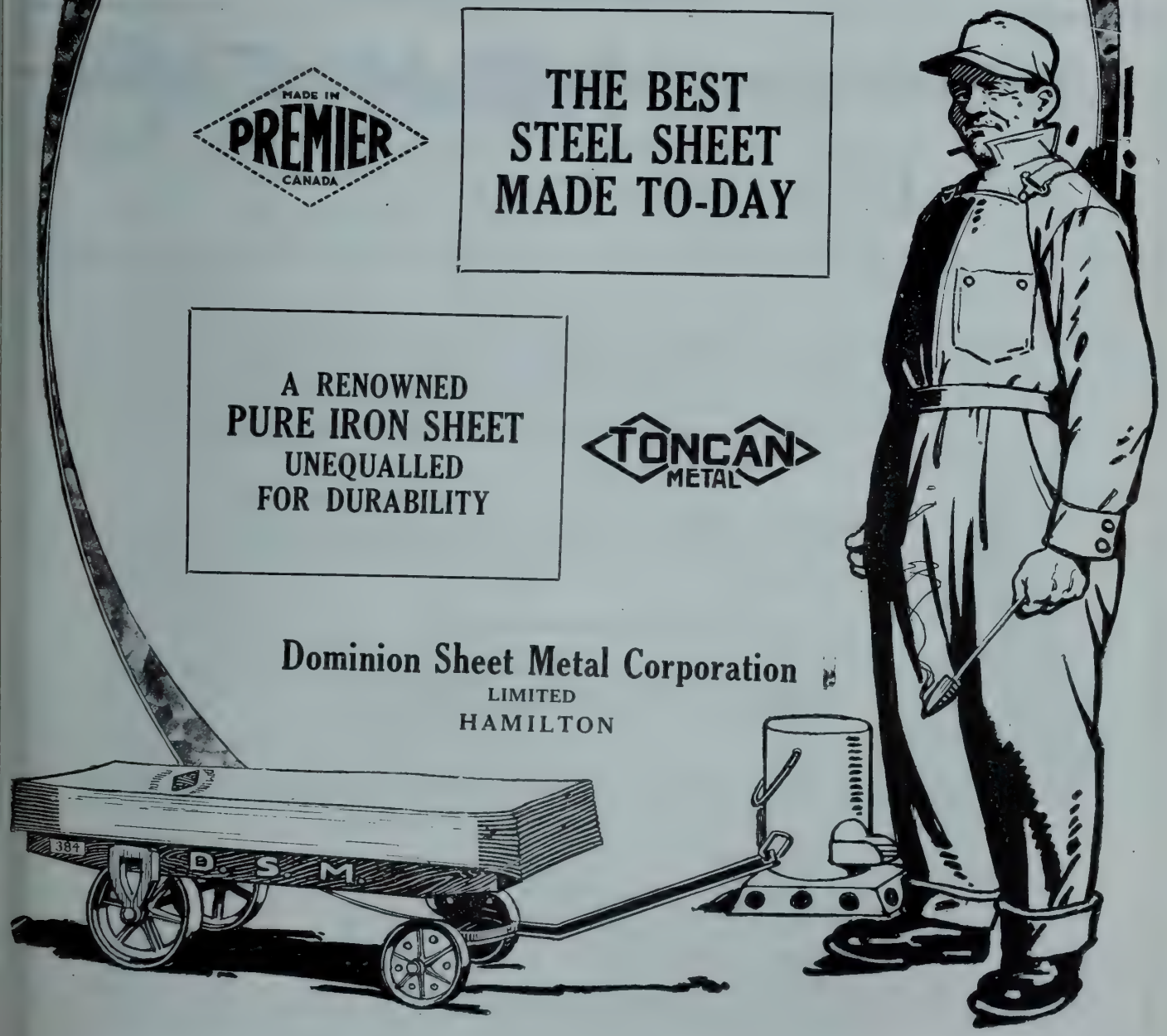

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HAMILTON

A Bathroom Equipped with "Standard" Fixtures

THERE is real, all-round satisfaction when a bathroom is equipped with the latest designs of Plumbing Fixtures—not to the owner alone, but also to the plumber who installs them—it is a mark of progress for him.

"Standard" equipment is practical and permanent for the home. See that you carry a complete stock of "Standard" goods—this gives your customers the selection of various types of fixtures, each best suited for a particular installation.

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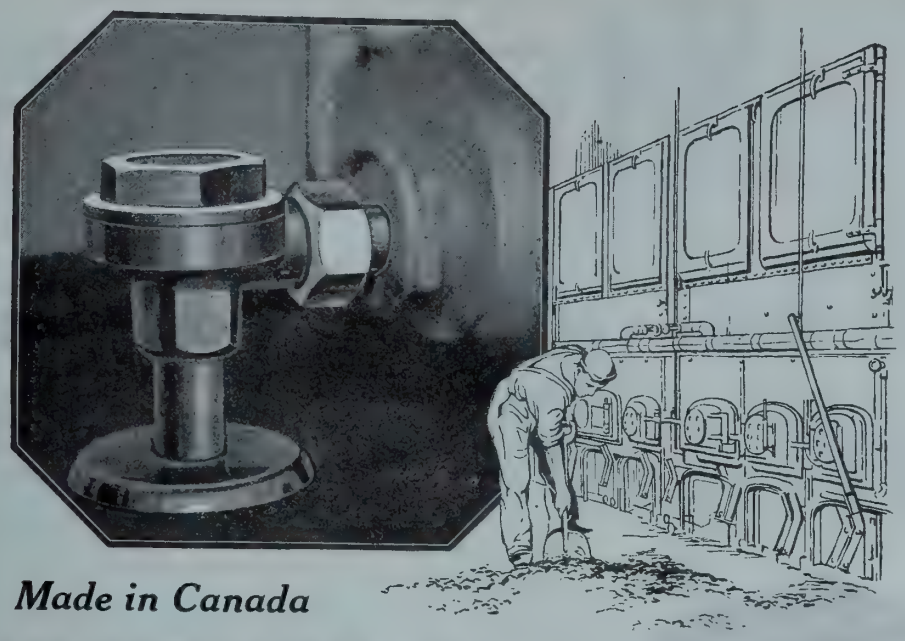

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A DEPENDABLE VALVE FOR EVERY PURPOSE

The Valve-Test That Safeguards A 56-Year Reputation

We might well depend solely upon the care used in their designing and the high grade materials from which they are made to maintain the high standard of value established by Jenkins Valves some 56 years ago.

—but that our enviable reputation may be preserved unimpaired we see to it that every valve bearing our well known Diamond Trade-Mark is **thoroughly tested before leaving the plant.**

So that the valve purchaser who specifies Jenkins Valves is insured against the losses inherent with the cheap imitations of the genuine Jenkins, a host of which is now on the market.

Therefore—look for the Diamond Trade Mark on the body of the valves you buy. It is your guarantee of long and satisfactory service even where conditions of usage are more than ordinarily severe.

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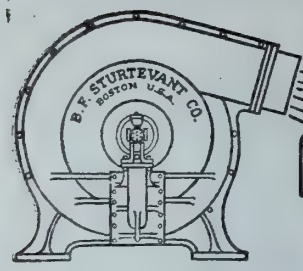

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REG. U.S. PAT. OFF.

PUTS AIR TO WORK

Do you base your profits on initial cost?

MOVING PICTURE THEATRES OFFER A FRUITFUL FIELD FOR THE WIDE AWAKE HEATING AND VENTILATING CONTRACTOR.

YOU find contractors placing orders for equipment many times simply as a result of what they think their profits are going to be.

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My price to the purchaser	So much
My profit	So much

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Have you ever been disappointed with your heating and ventilating jobs because the volumes and capacities of fans failed to meet your specifications?

Engineers and contractors *do* experience such situations and usually it is because they have specified or brought apparatus minus manufacturer research and engineering.

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In all classes of buildings and under all conditions of operation Sturtevant systems prove successful. We manufacture heating and ventilating equipment suitable for dairy lunch or skyscraper with equal attention to the requirements of either.

Consult any one of our sales-engineering branches or write to Hyde Park for literature, stating the class of building you are interested in.

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AND ALL PRINCIPAL CITIES

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Made in Canada

The Brand that has the Quality

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

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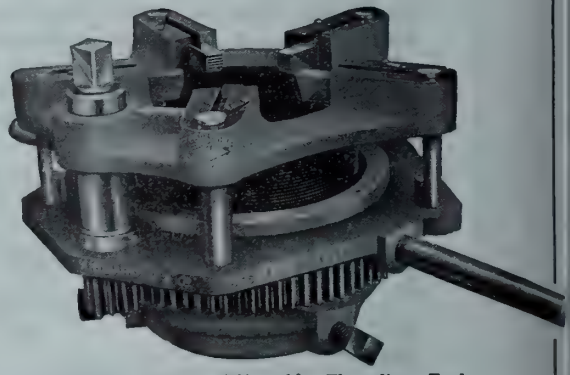
RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS
With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads.

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing
Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

JARDINE and TOLEDO PIPE THREADING TOOLS



"Toledo" Geared Adjustable Threading Tool. No. 2½. Capacity 2½ to 6 in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or jim cracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

SEND FOR CATALOGUE

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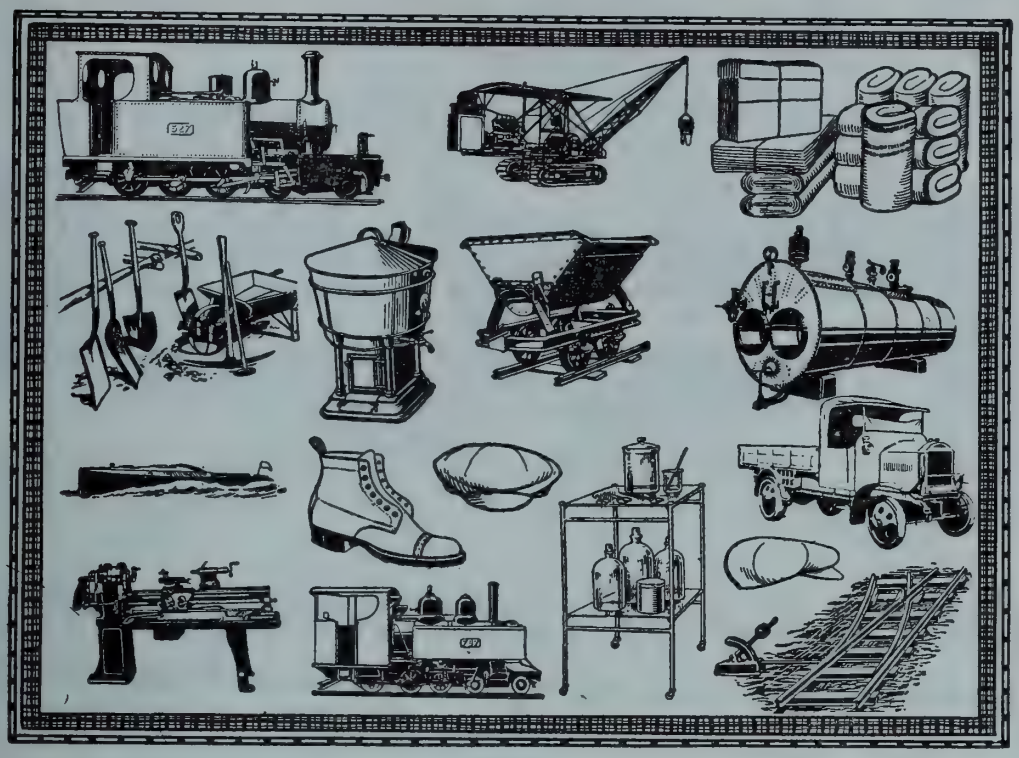

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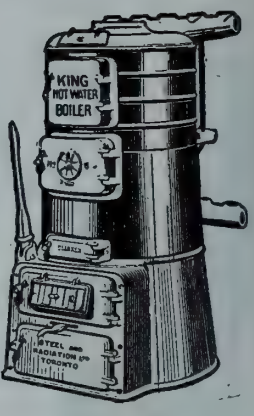
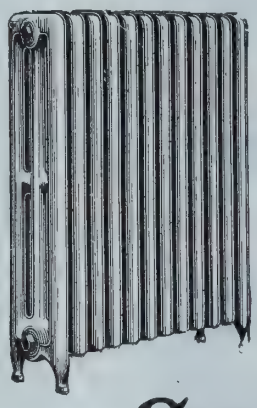
Your customer must be satisfied if your business is to grow. Heating system costs money now and you should be careful to install only King Boilers and Imperial Radiators—The system that satisfies.





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Don't be tempted to substitute inferior boilers for the sake of a few dollars—you'll lose in the end. The low consumption of coal, together with the ability to heat every corner in every room, has made the King Boiler a general favorite. Recommend this perfect heating system to your customers.

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possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.

They insure the best of service, and stamp any job on which they are used as well equipped.

Use Kerr Valves. They give character to your work.

Catalogue No. 5 on application.

THE KERR ENGINE COMPANY, LIMITED

Valve Manufacturers

WALKERVILLE, ONTARIO

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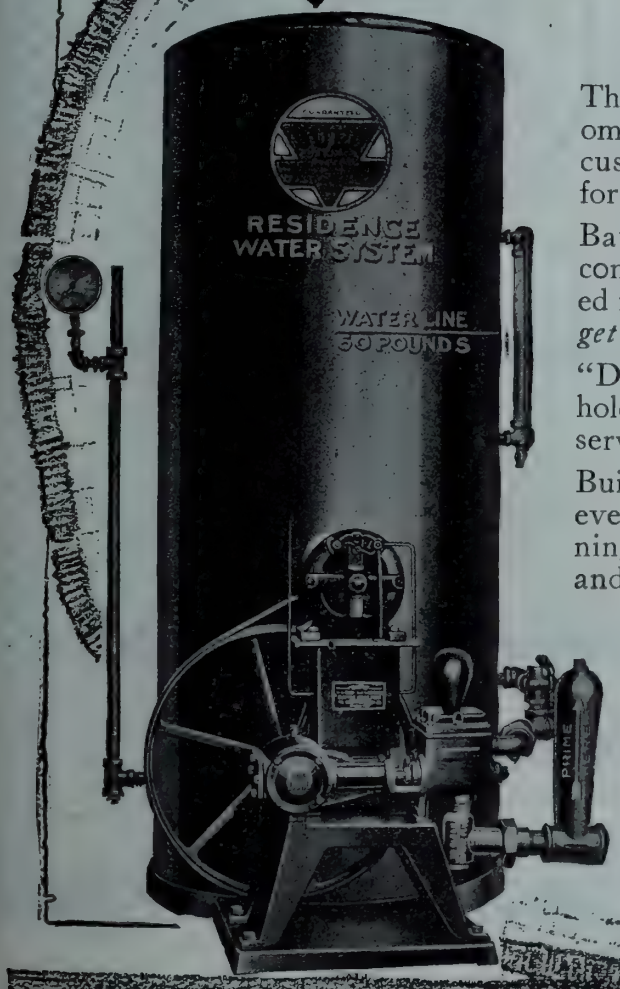

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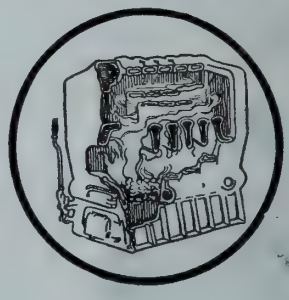
Yes, a woman started it.

Not the fire. The idea. She said it was a pity a camp fire couldn't heat the top of a pan the same time it did the bottom, then things would cook in half the time by cooking both sides at once.

After which some one brighter than the rest of us, said "That's so."

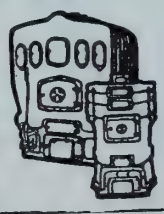
There was one of us said neither or nor—but just kept thinking. Finally he thought that if the lid of the pan could be made leak-tight and suspended in the fire by the handle, the fire would come against the bottom and both sides, and lick over the top all at one time. He knew it would be a humdinger to heat water quickly.

Then if he didn't go and make a boiler with a lot of longish, keyhole-shaped pans right over the fire. No need to tell you what happened to the water inside them.



Now every time I meet myself anywhere, I always make it a point to point out that flock of pans that has so much to do with the Burnhams doing up other boilers, when it comes to doing most on the least coal. Then I always am chivalrous enough to add that the idea started with a woman; because everybody knows anyway that women start most things.

By Booster Bing



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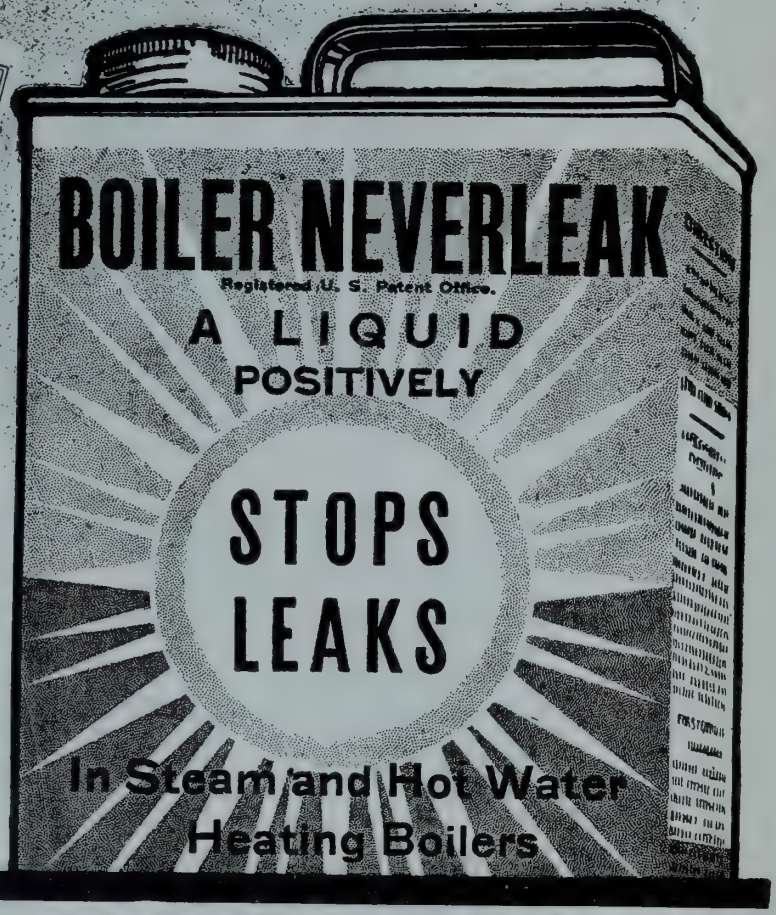

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PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 — PUBLISHED TWICE MONTHLY

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Discussion on American and British Pipe Threads

Being an Extract From the Finding of the Committee of Manufacturers of Pipes, Valves and Fittings, Following a Conference Held in Paris, in Reference to the Adoption of an International Standard

By J. H. RODGERS

AT no other time in the world's history has there been a greater necessity or a more genuine desire on the part of manufacturers and engineers of the Allied countries for a better understanding of their mutual problems. A frank and liberal exchange of ideas will bring about closer international co-operation and secure greater uniformity in matters of standard practice. With this in view the following data have been compiled from the findings of the committee of Manufacturers on Standardization of Fittings and Valves, with the hope of contributing to the common knowledge and shedding additional light on certain phases of the subject which may have been somewhat obscure in the past.

While it is generally known that the usual practice has been the adoption of the American or British standards of pipe threads, it will be interesting to many to learn that in 1914, at a conference held in Paris, an International Pipe Thread Standard was proposed, but that so far it has not been applied commercially. To familiarize the readers with the outline of the various standards, the following brief summary has been given.

The American Standard:

Pipe sizes—⅛ inch to 30 inches, inclusive.

Profile of thread—60 degrees V thread, slightly truncated.

Taper male and female threads are established.

Taper of cone (1 in 16).

Straight threads are recognized only for certain special applications.

Threaded plug and ring gauges are established.

Tolerances are established.

Dimensions are expressed in inches and millimeters.

The British Standard:

Pipe sizes—⅛ inch to 18 inches.

Profile of thread—55 degrees thread, rounded Whitworth.

Taper and straight male and female threads are established.

Taper of cone (1 in 16).

Straight threads are recognized for general use.

Threaded plug and unthreaded ring gauges are established.

Tolerances are established.

Dimensions are expressed in inches.

The Proposed International Standard:

Pipe sizes—⅛ inch to 20 inches, inclusive (3 to 500 mm).

Profile of thread—55 degrees, rounded (Whitworth).

Taper and straight male threads are established—two tapers are recognized (1 in 16) and (1 in 32).

Straight male threads are recognized for general use.

Gauges are not established.

Tolerances are established.

Dimensions are expressed in millimeters.

General Remarks on Pipe Practice

In America and Canada the general use of the straight male and female threads for pipe joints was discarded many years ago. This was forced upon the manufacturers by the urgent demand for interchangeability, and this condition is much easier attainable with product with a taper thread. By interchangeability is meant that ready method of making joints with pipe cut by one manufacturer with valves and fittings made by another manufacturer, and with threads cut by the steamfitter, with dies made by still another manufacturer. The taper male and female threads for pipe joints are more firmly established on this continent than elsewhere. Some of the methods used throughout the world may be stated as follows:

Taper male and female threads.

Taper male and straight female threads.

Greater taper on female than on male.

Straight threads on male and female joints with packing and locknut—Fig. 17.

Straight threads, with packing between male and female threads as well as under locknut—Fig. 18.

Various Standards in Use

Fig. 17 illustrates a joint made with a straight male and female thread, which requires packing to make a tight joint, and a locknut to retain the packing in position. No permanent metal to metal joint is made. This type of connection is used extensively in Europe. It will readily be seen that the efficiency of this

*Second of two articles bearing on pipe thread standards, the first appeared in the Feb. 19th issue.

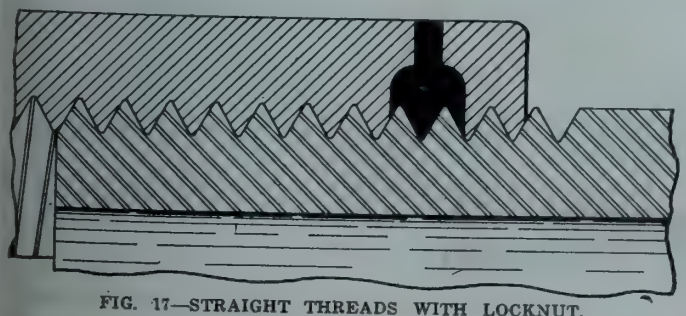


FIG. 17—STRAIGHT THREADS WITH LOCKNUT.

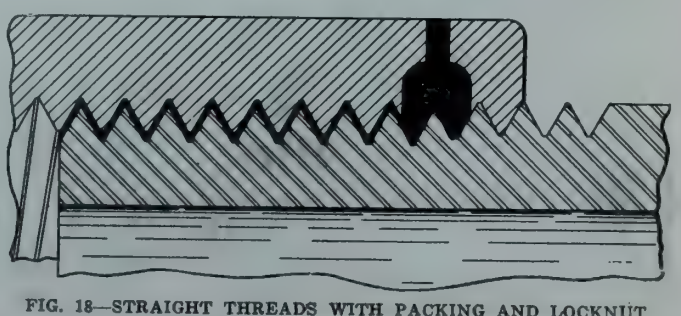


FIG. 18—STRAIGHT THREADS WITH PACKING AND LOCKNUT.

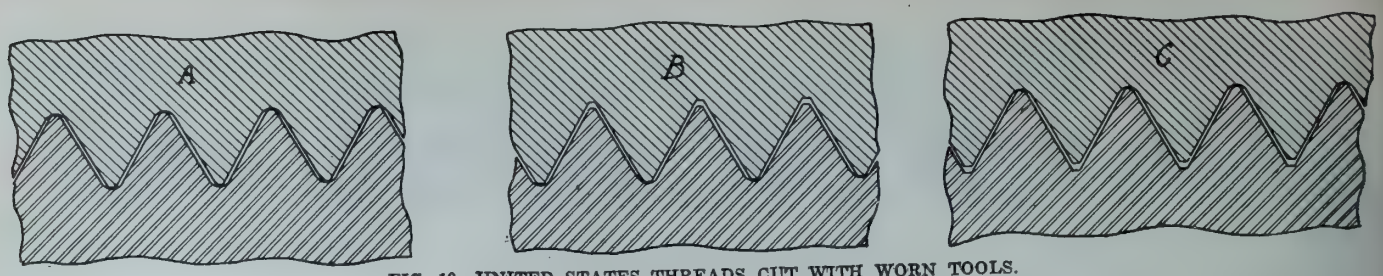


FIG. 19—UNITED STATES THREADS CUT WITH WORN TOOLS.

joint is dependent very largely on the packing and the locknut. Owing to the long thread engagement and the possible imperfections in the pitch, the possibility of making interchangeable product is greatly increased. Should the male thread be cut slightly undersize, it is also necessary to use packing between the thread, as shown in Fig. 18. Where joints are subjected to considerable vibration and heat, the effectiveness of the connection is soon destroyed. This joint is still used to a small extent in the United States, but usually where the temperature and the pressure are comparatively low.

With straight female and taper male threads, or where the taper of the female is greater than on the male, the chief objection is that the actual effective contact only comes on a small portion of the thread length. Considerable use of this style of joint is the practice in Europe, but on this continent it is practically limited to wrought iron or wrought steel fittings, where the female section with a straight thread will yield sufficiently to adjust itself to the taper male when the joint is properly screwed together.

The ideal joint is where the two threads are given the same taper, as it gives a metal to metal contact throughout the entire length of thread, assists in filling all irregularities, allows reasonable variations in the diameters without destroying the interchangeability, and holds up under excessive pressure. In comparing a taper thread joint with a straight one, the efficiency of a drill socket might be cited, where the taper shanks of twist drills will adapt themselves to any make of drill press, while the same result would be virtually impossible with straight shank drills. In former days a steamfitter felt that he was shouldering a very heavy responsibility when called upon to put up piping to withstand a steam pressure of from 200 to 300 lbs., but with the Briggs standard as adopted in the United States and Canada, the highest pressure offer no greater difficulty than the ordinary low pressure installations.

In considering the merits of any pipe thread standard, it must be borne in mind that the ease of screwing pipe into fittings to make tight joints is the prime consideration. Users must be able to buy pipe, fittings or valves indiscriminately and make whatever connections are considered satisfactory; therefore any standard to be efficient must fulfill these requirements. The American standard is the only existing standard that has consistently met these demands for a long period of years. Its success has been due to a combination of desirable features, which are outlined herewith.

Profile of Threads

As shown in the previous article on this subject, the profile of the American standard thread was illustrated in Fig. 1. The flat or truncated portion of the thread is only slight, even on the coarsest pitch of eight threads per inch, where the flat measures about .004 in. The purpose of the truncation is merely to break the crest and the root of the sharp V, and thus facilitate the fitting of the threads. In commercial work, the pipe is generally threaded with dies which may be more or less worn, so that a perfectly theoretically cut thread is almost impossible. The first evidence of wear on a tap is the dulling or wearing down of the tops of the teeth, with the result that the female threads cut with a worn tap will have a rounded root, but the crest will remain nearly the correct profile, for the reason that the wear is greater at the crest, where the greatest work is done, than on the sides or the root. The same condition practically applies to dies for cutting the male threads. At A Fig. 19 is shown male and female threads that have been cut with dull tools. When the wear is not excessive, an almost perfect fit can be obtained with this type of thread, owing to the sharp crest forcing its way into the root of the thread and providing a metal to metal contact throughout the entire length of the thread engagement. The American thread affords greater opportunities for compensation for inaccuracies. Slight errors in the pitch of thread are easily taken up by this thread.

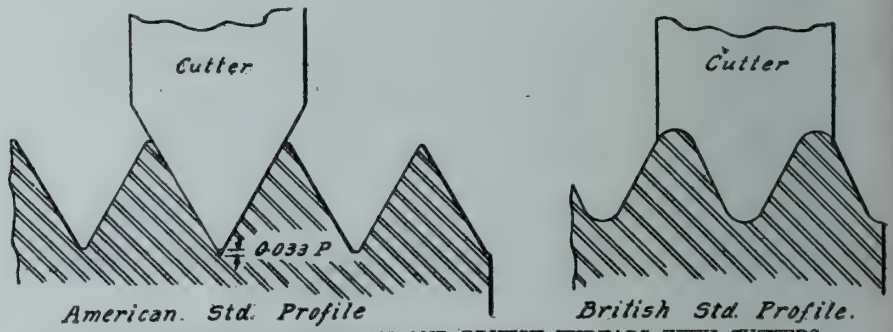


FIG. 21—PROFILE OF AMERICAN AND BRITISH THREADS WITH CUTTERS.

Where only one of the threads is cut with a dull or worn tool, the breaking down of the crest is only necessary on the opposite thread. Illustrations of this condition are shown at C and B in Fig 19.

The profile of the British Standard pipe thread, as well as the proposed International thread, is shown at D Fig 20, and has an inclined angle of 55 degrees, rounded at crest and root, and the taper is at right angle to the surface of the cone. It might be well to state here that with perfectly cut threads, one con-

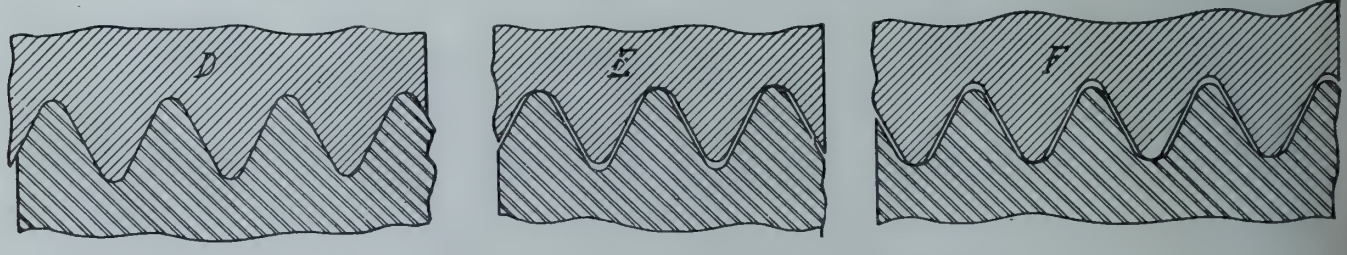


FIG. 20—BRITISH THREADS CUT WITH PERFECT AND WORN TOOLS.

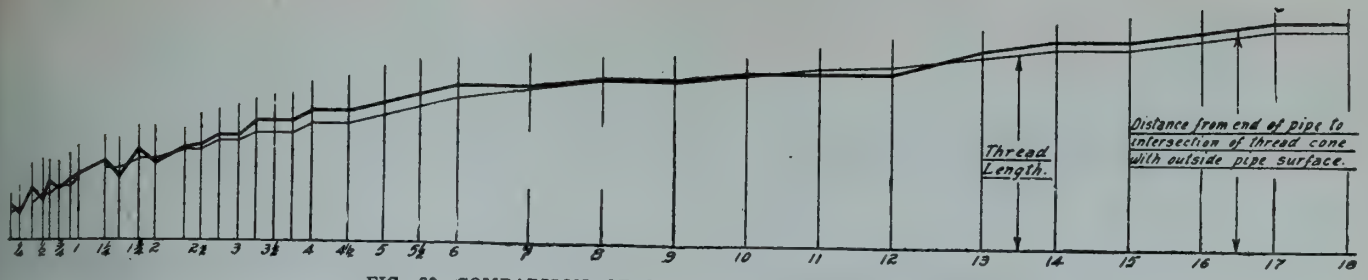


FIG. 22—COMPARISON OF BRITISH AND AMERICAN THREADS.

tour of thread has no distinctive advantage over another, and any one will make a joint equally effective, but as perfectly machined pipe threads are impossible in commercial manufacture, the suitability of the various profiles to working conditions is the prime consideration. Owing to the inevitable wear of the cutting tools, it is obvious that the rounded crests of the British threads will not conform so readily to inaccuracies in the roots as the sharper crests of the American standard profile, so that the commercial made joints in all probability are only made on the rounded crests and roots. It is doubtful if the flanks will come into intimate contact. When realizing that the prime object of a pipe thread is to make a pressure tight joint under commercial conditions, the advantages of the American standard over that of the British is clearly evident. The result of worn tools when working on the British threads is illustrated in E and F in Fig. 20.

The rounded crests and roots in the British threads introduce complications in the manufacture of the different tools and gauges that make the interchangeable factor a serious problem. This is amply illustrated in Fig. 21, which shows the respective cutters for both the American and the British practice. The one tool will answer for a wide range of threads on the American thread, but in the British system the cutting tools and the gauges are limited to the one particular pitch for which it is used. When the latter has to be reground to operation requires very accurate attention, while the straight sides of the American thread offers little difficulty.

While the American thread is cut at right angles to the axis of the thread and the British thread is cut at right angle to the surface of the cone, there is little advantage that can be given to one over the other, but the manufacture of the taps and the dies are easier to make when the threads are cut at right angles to the axis of the thread.

Length of Threads

Fig. 22 shows the respective proportions of a 2 inch British and a 2 inch

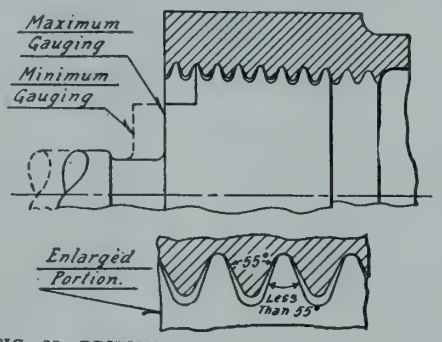


FIG. 25—BRITISH STANDARD PLUG GAUGE.

American thread, giving the relative lengths of perfect and imperfect threads, and also the effective thread length in each case. On every pipe size the American standard length of thread includes the two imperfect threads as indicated. The effective length of the American standard thread is expressed by the formula $(0.8G + 6.8)P$, where G equals the outside diameter of the pipe and P equals the pitch. The British standard length of thread is expressed by the formula (D ⅛ inch), where D equals the nominal bore of the pipe. The length of engagement in both cases is determined by the distance of the gauging point from the end of the pipe.

In comparing the advantages of one thread length over another, and deciding on the most suitable length, it is necessary to take into consideration not only the theoretical lengths mentioned above, but also the variations from these lengths permitted by the established tolerances. The thread must be long enough to give sufficient engagement under the extremes permitted by the tolerances. Too long a thread is objectionable as the additional imperfections must later be crushed in making a tight joint. In the American standard the tolerance is limited to one thread plus or minus from the gauge size, but in the British standard the tolerance established is expressed in terms of distance which bear no constant relation to the pitch of the thread.

In considering the effective length of the threads it will be noted that the American standard is based on the outside diameter of the pipe and the pitch of the thread, while the British is based on the nominal bore of the pipe only. As the outside of the pipe is the determining factor of a pipe thread it would seem to be more suitable basis from which to compute the thread length. However, the formula is of secondary importance, providing the length is suitable for practical application. By referring to Table 1, it will be noted that the number of effective threads on American standard pipe increases uniformly, being 7.1 on the ⅛ inch size and 30.8 on the 30 inch size. On the British thread the increase is irregular, a smaller size frequently having a greater number than a larger size. The same is true of the proposed International standard This in itself is of no great importance, but it shows that the American practice is more consistent.

In order to make the diameter of the thread as large as possible with relation

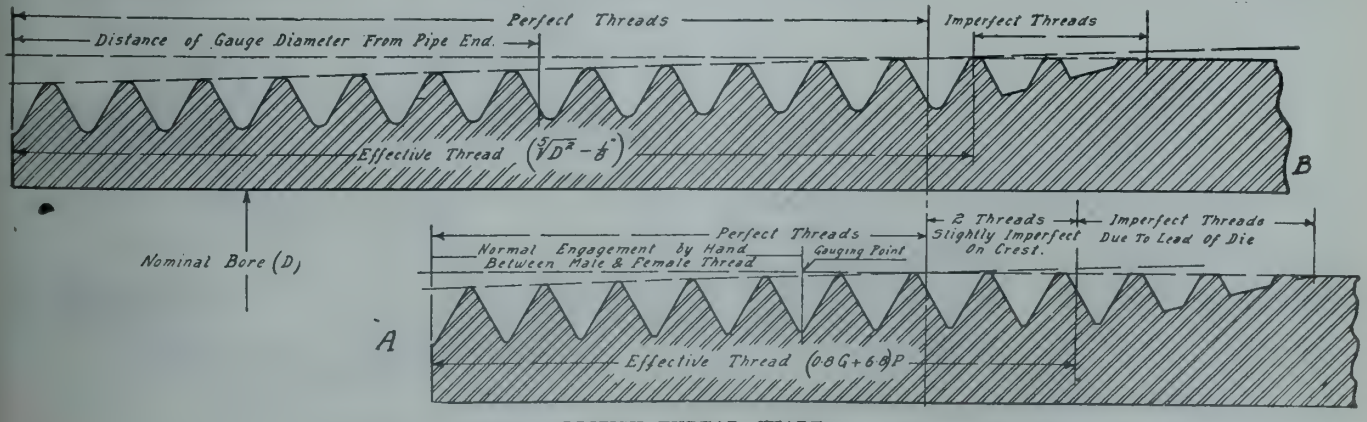


FIG. 23—BRITISH THREAD CHART.

to the outside diameter of the pipe, thereby maintaining the maximum thickness of the pipe, the American standard utilizes the two threads with imperfect crests as effective threads. By referring to Fig. 22-A, it will be noted that the cone formed by the tops of the threads intersect the outside surface of the pipe between the end of the pipe and the end of the effective thread. The distance of this intersection from the end of the effective thread is a constant amount on all sizes, being equal to two threads.

By referring to Fig 23, it will be noted that there is no constant relation in the British standard between the length of the effective thread and the intersection of the thread cone with the outside diameter of the pipe. On sizes, ¼, ½, ¾, 1½, 2, 11, and 12, the intersection comes between the end of the pipe and the end of the effective thread and a portion of the thread is, therefore, slightly imperfect on the crests, but the number of such threads bears no constant relation to the pitch. On the remaining sizes, the intersection comes beyond the end of the effective thread, and there are no threads with flat crests. This again indicates that the American standard is more carefully studied out, and leads to the consideration of an important matter, a comparison of the practical advantage of one thread length over another.

It can be seen from Fig. 22 and also from Table 1 that the American thread is shorter on all sizes than either the British or the proposed International threads. On some sizes the difference is slight but quite pronounced on the majority of sizes. From this it is obvious that the longer the thread the greater amount of metal that will have to be removed from the outside of the pipe when cutting taper threads. Another advantage of the shorter thread is the saving of time required to cut the thread, and as the increased length is detrimental rather than beneficial the increased time required to cut the longer thread is an item of considerable importance.

TABLE 1

SIZE	NUMBER OF EFFECTIVE THREADS ON PIPE		
	American	British	International
	TURNS		
⅛	7.10	10.50	11.00
3/16	.....	.....	7.45
¼	7.25	8.30	8.15
3/8	7.35	9.50	9.20
½	7.45	8.75	8.00
5/8	.....	8.75	8.80
¾	7.65	10.50	9.65
7/8	.....	10.50	10.50
1	7.85	9.65	9.55
1⅛	.....	.....	9.55
1¼	8.15	11.00	10.20
1½	8.35	11.00	10.40
1¾	.....	12.40	11.90
2	8.70	12.40	12.55
2¼	.....	13.75	13.20
2⅜	.....	.....	13.40
2⅞	.....	.....	13.65
2½	9.10	13.75	13.85
2¾	.....	15.10	14.50
3	9.60	15.10	15.15
3¼	.....	16.50	15.80
3½	10.00	16.50	16.45
3¾	.....	16.50	17.10
4	10.40	17.90	17.75
4½	10.80	17.90	18.60
5	11.25	19.25	19.50
5½	.....	20.60	20.35
6	12.10	22.00	21.20
7	12.90	21.25	17.00
8	13.70	22.50	17.95
9	14.50	22.50	18.90
10	15.40	23.75	19.50
11	16.20	20.00	20.15
12	17.00	20.00	20.80
13	.....	21.00	21.40
14	18.00	22.00	22.05
15	18.80	22.00	22.70
16	19.60	23.00	23.30
17	20.40	24.00	23.95
18	21.20	24.00	24.55
20	22.80	.....	25.80
22	24.40	.....	.....
24	26.00	.....	.....
26	27.60	.....	.....
28	29.20	.....	.....
30	30.80	.....	.....

FIG. 27—COMPARTIVE LENGTHS OF EFFECTIVE THREADS.

Gauging

The method of gauging on the British standard is shown in Figs. 24 and 25, the plug gauge for the female thread being cut at a lesser angle than the work so that the crest of the gauge threads bear on the root of the threads in the fitting. The ring gauge for gauging the pipe or outside threads is a taper bore that fits over the crests of the thread, the tolerance being indicated by the notched portion of the smaller end of the gauge.

Another serious objection to too long a thread engagement occurs in designing valves and fittings. Referring to Fig. 26 it will be evident that the valves of fitting must be long enough to avoid interference at the inner end of the thread. In considering the pitch of threads, it should be remembered that successful application in service and manufacture is of prime importance; furthermore, the number of different pitches for the entire range of pipe sizes should be the smallest number consistent with the ratio of pitch to diameter.

(Continued on page 21.)

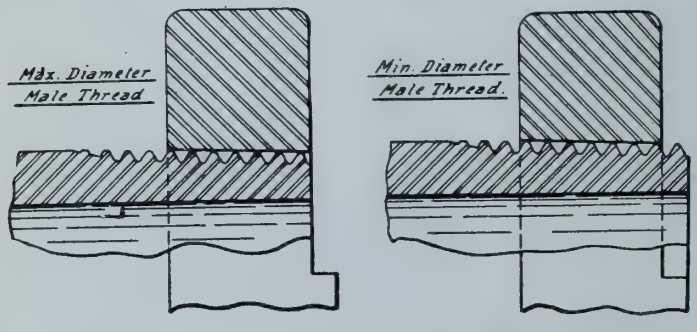


FIG. 24—BRITISH STANDARD RING GAUGE.

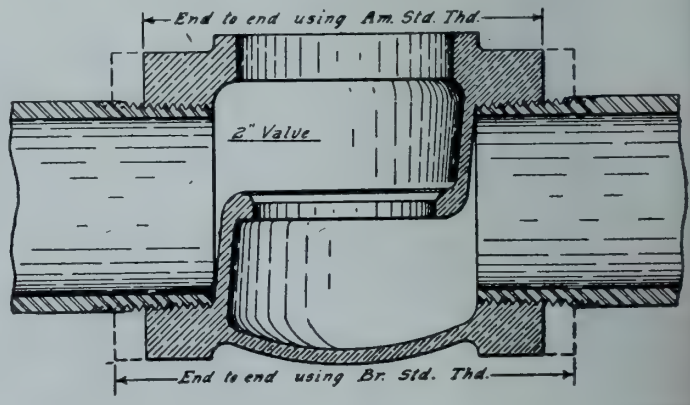


FIG. 26—COMPARATIVE THREAD LENGTHS OF FITTINGS.

Heating and Ventilating

The Circulation of Water

Cold Water Starts to Expand Just Before It Reaches the Freezing Point—What Causes Water Circulation—The Force of Circulation

Written for Sanitary Engineer by N. A. KEARNS

USUALLY when the temperature of a body is raised there is an increase in the dimensions of that body.

Water, however, does not increase in volume in direct ratio to its increase in temperature.

Water as it is cooled contracts until it is near the freezing point and then it expands.

Water is at its maximum density and minimum volume at about 39 degrees above zero Fah.

If water is placed in a vessel and gradually cooled, the water about the centre will descend as it becomes denser. It will continue to descend until all of the water in the lower part of the vessel has reached its maximum density. Then if the cooling process is continued the water in the middle of the vessel will become lighter and therefore ascend.

This is just exactly what happens to large bodies of water.

The surface water becomes dense with the decrease in temperature and sinks. The warm water rises to the top.

The process keeps on until the whole body of water comes to the uniform temperature of 39 deg. above zero.

Any further decrease in the temperature of the water means that there is an increase in its bulk and therefore a decrease in its relative weight.

The colder and lighter water is held to the surface by the density of the warmer water below. It is held there so long that ice forms and protects the warmer water below.

Thus we see that the cold water starts to expand just before it reaches the freezing point.

Rate of Expansion

We have learned that water decreases in volume as it decreases in temperature; therefore, by the same process of reasoning we understand that water must increase in volume as it increases in temperature.

As the water increases in volume it decerases in density and therefore in weight.

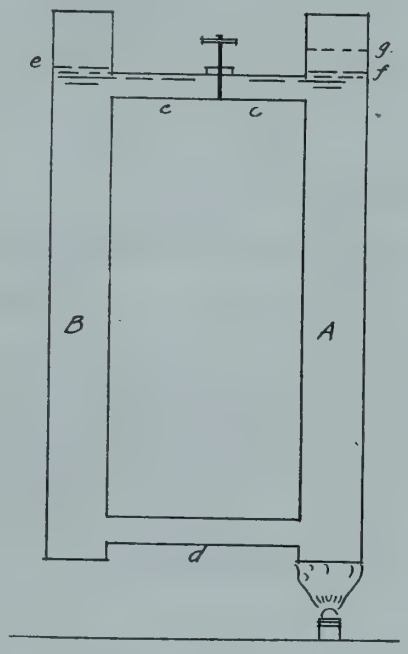


Fig. 1

The weight of one cubic foot of water at 32 deg. above zero is 62.418 pounds; at 39 deg. above zero it is 62.425 pounds; at 212 deg. above zero it weighs 59.760 pounds.

It is the changing temperature of the water contained within a heating system that causes the water to change its weight and effect a circulation.

The apparatus shown by Fig. 1 will serve to illustrate how the circulation of water in a gravity-system takes place.

The tubes A. and B. are filled with water just up to a point above the top connecting tube c, c.

The water in both tubes will stand at the same level, because the water is at the same temperature in both tubes, and because the tubes are connected.

Now close the cock in the connecting tubes and light the gas jet under tube A.

The increased temperature of the water in tube A. will cause that water to expand.

There will be exactly the same amount of water in tube A. after it is heated as there was while the water was cold.

But the water in tube A. must expand with the heat.

There are only two ways in which it can expand, either upward to A. or back through the connecting tube D.

As the water in tube A. increases in temperature its increase in volume causes it to rise in tube A. to the point G.

Now the head of water in tube A. is higher than it is in tube B. But this increase in head will not cause the water from tube A. to back through tube D. into tube B. It can not cause it to back, because although the water head is higher in tube A. than in tube B. the weight of water in both tubes is exactly the same at the base of both tubes.

Now open the stop-cock in tube C, C. Water will flow from the increased head G. in tube A. to the tube B.

This additional water in tube B. will increase the pressure at the base of the tube B.

The decreased head in A. will decrease the pressure there.

As long as the flame is kept burning at the base of tube A. the circulation balancing the inequalities of pressure will be continued.

If the flame is removed the circulation of water will continue until the density of the water in both columns is equal.

This shows that the first cause of water circulation in a heating system is the action of the cooler water in one part of the system driving the warmer and lighter water out of another part.

The Force of Circulation

The pressure that is due to the head of water between F. and G. in Fig. 1 is the force that causes the water to move.

The speed of circulation is, however, more dependent on the difference in the temperature of the descending and ascending currents of water than it is on the volume of water contained within the apparatus.

It can be readily understood that the circulation of the water through the tubes A. and B. (Fig. 1) would be greatly accelerated if a piece of ice or other cooling medium were suddenly applied

to tube B. The cooling would increase the density of the water contained within the tube B. and thus increase the pressure through tube D.

Occasionally to carry hot water to a radiator situated in some unfavorable location, an overhead loop is run to the top of the building. The return of the loop is used as a feed pipe to the radiator.

The rate of water circulation through that radiator is in proportion to the height of the loop and to the drop in temperature of the water contained within that loop.

If the loop passes through a cold room, the circulation through the radiator will be much more rapid than if the loop passes through a warm room.

If there is no drop in temperature there will be no circulation.

The fast circulation of water through a radiator set high up in the building is due to the great height of the return column of its circulating system. The water in the return column has been cooled by the radiator and thus because of its greater density exerts a more powerful thrust on the base of the return than it could had it been cooled lower down on the line of the return column.

Because the force that moves the water in a gravity hot water plant is increased by increasing the height of the circulation head, the error is sometimes made of believing that running up the expansion tank to a point away above the circulating lines increases the rate of circulation.

No part of the apparatus situated above the level where the water begins to flow downward can be considered as having any effect on the operating head.

Any increase in the height of the expansion tank or any provision for increasing the static weight only has the effect of raising the boiling point. It is the high temperature obtained with an increased static pressure that makes possible the rapid circulation claimed for systems when an extra pressure is applied by way of the expansion line.

Water conducts heat so poorly that the heating or cooling effect depends almost entirely on circulation. Water should be cooled from above and heated from below.

Pipe systems used for cooling purposes should be arranged so that the refrigerating medium is applied to the top of the descending columns. The material that is to be cooled should if possible be placed close to the base of the ascending column.

The Question Box

(Question.)—Is it necessary to back vent fixtures on a rural plumbing job where a septic tank is being used? If so, what advantage is it?

JACKSON & PRESCOTT,
Plumbers.

Answer:

The proposed new regulations of the Ontario Provincial Board of Health require that "the trap of every fixture should be protected from syphonage and back pressure by an anti-syphon or vent pipe which shall, where possible, be constructed on the continuous waste and vent principle." These regulations, however, have not as yet been enforced; so if there is no Municipal Act compelling you to back vent the plumbing fixtures, there is no reason why you should do so, other than that of providing for a really first class job of plumbing.

The back-venting of traps is to guard against the possible syphonage or blowing of the traps when the drainage lines are subjected to a partial vacuum or pressure.

If you do not install a system of back venting you should use anti-syphon traps, and also see to it that the end of the house sewer is properly vented before it turns down to the sewage in the septic tank.

Anti-syphon traps, because of their large water ways, must be frequently cleaned.

The house sewer may be vented at the tank end by way of a tee placed so that one end of its branch is turned above the "mat" in the tank. If the end of the house sewer is not vented in this way the pressure of the air, coming into the tank ahead of the sewage, will break the "mat."

While there are many municipalities where the back venting of plumbing fixtures is not required by law, we believe that traps should always be vented. With proper back-venting the waterway of the trap can be kept down to the area of the drain from the fixture, and thus in this way provide for a positive scouring action of the drainage water.

Consolidation of Drop-Forging Plants

The stockholders of J. H. Williams & Co., manufacturers of drop-forgings and drop-forged tools at Brooklyn and Buffalo, N.Y., and of Whitman & Barnes Manufacturing Co., makers of twist-drills, reamers, wrenches and drop-forgings, at Akron, Chicago and St. Catharines, Ont., ratified the agreement providing for the consolidation of the wrench and drop-forging plants and business of Whitman & Barnes at Chicago and St. Catharines with J. H. Williams & Co., as outlined in Sanitary Engineer some weeks ago. The Whitman & Barnes Manufacturing Co. retain their twist drill and reamer business and will continue as an entirely separate organization and on an extended scale the manufacture of these tools at Akron, Ohio.

The J. H. Williams & Co. business was founded in Flushing, L. I., as a partnership in 1882, by James H. Williams and Matthew Diamond, under the style of Williams & Diamond, later Williams & Brock. It located in Brooklyn in 1884, assumed its present name in 1887, and was incorporated in New York State in 1895.

The Whitman & Barnes Manufacturing Co. was founded as a partnership in 1846 by Augustus Whitman and Alfred G. Page, under the title Page, Whitman & Co. In 1868 the Akron factory was built, and in 1877 the business was combined with that of George Barnes & Co., of Syracuse, N.Y., the enlarged concern assuming its present name—the Whitman & Barnes Mfg. Co. The St. Catharines plant was acquired in 1882, and eleven years later the Chicago works were built.

The business will continue to be operated by those who have been continuously identified heretofore with the business of J. H. Williams & Co., and with the Chicago and St. Catharines plants of the Whitman & Barnes Manufacturing Co., the organization being as follows:

President and managing director, J. Harvey Williams; vice-president, A. D. Armitage; secretary and treasurer, W. A. Watson; controller, R. S. Baldwin; general sales manager, F. W. Trabold; Eastern district sales manager, A. S. Maxwell; Western district sales manager, W. E. Rowell; Buffalo district sales manager, J. C. Cotter; Detroit district sales agent, A. M. Thompson; publicity manager, Hugh Aikman; general works manager, Capt. W. N. McMunn; chief engineer, Willard Doud; superintendent Brooklyn division, R. J. Smith; superintendent Buffalo division, T. F. Du Puy; superintendent Chicago division, Barney Nelson; general purchasing agent, J. C. Scanlon; general traffic manager, J. B. Payne; Canadian manager, W. J. Elliott.

New Goods of Interest to the Plumbing Trade

THE ARMSTRONG TABLE STOVE

The Standard Stamping Co., Huntington, W. Va., have brought out a new table stove which should especially ap-

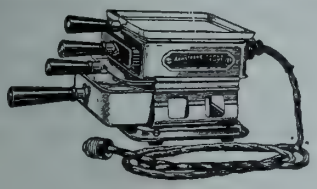


Table Stove

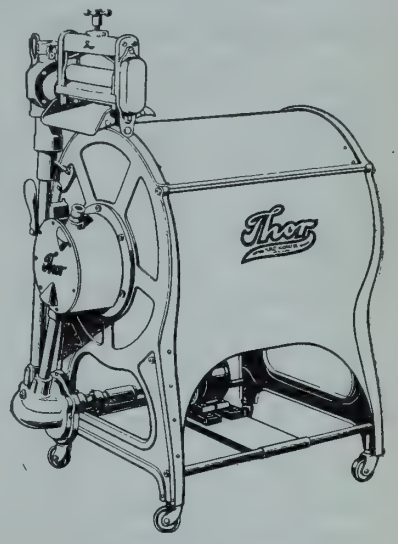
peal to people who wish to get breakfast or any other meal in a hurry. The aluminum cooking utensils include a deep boiling pan, four egg cups and rack, the toaster which browns both sides of the bread at once, griddle and waffle iron. Three things are cooked at once and the makers state that a typical breakfast menu of bacon, toast and eggs can be prepared in five to seven minutes on the stove.

The stove is nickelled steel and has a feature in the tilting connection plug which, it is said, never sticks, and slips on and off with an easy tilting motion.

THE NEW THOR ELECTRIC WASHER

The Hurley Machine Co. announce that their New Thor Washer No. 32 is in production and they will be able to make deliveries September 1. This machine they state is the result of fourteen years effort in developing and designing, and they believe they have a practical and handsome washer that will appeal to dealer and user.

It is stated that the machine is 98 per cent. steel and is equipped with a ball-bearing swinging wringer of their own manufacture. The interior body is of galvanized steel or copper, with either wooden or copper cylinder as desired. The entire machine is enamelled in Thor gray. The new Thor 32 is a reversing cylinder type machine and will, it is claimed, wash ten sheets, which is 10 per cent. more than their No. 27 accommodates, though it takes up no more floor space than their No. 25. The company have a Toronto branch.



New Thor Washer

DISCUSSION ON AMERICAN AND BRITISH PIPE THREADS

(Continued from page 18.)

For maximum efficiency in any system of interchangeability it is imperative that the gauging be done on those surfaces that will be least affected by the wear of the cutting tool. Practice has demonstrated that the sides of the threads remain practically unchanged when male and female threads are forced together. Therefore, it is essential to gauge at this point only. No gauging should be done at crest or root, as these may alter when making the joints. The working plug gauge should enter the fitting by hand the same distance as the pipe itself enters, and the working ring gauge should screw on the pipe the same distance as the fitting screws on by hand. The distance the pipe enters the fitting is the most vital feature, as the remaining thread adjusts itself when properly screwed up. In other words, the gauges should be a replica of that portion of the joint which is made up by hand.

Summary

The ultimate test of any standard is its successful application in commercial manufacture and use for a long period of years. The American standard has met this test in every respect. Its success cannot be attributed to any particular feature, but is due rather to the aggregate of its desirable features. The profile of the thread, pitch, length of thread, system of gauging, each contributes a share, and these, combined with the fact that the standard as a whole is readily adaptable to commercial application, has made it highly successful in every sense of the word. From the standpoint of manufacture it lends itself most admirably to large quantity production, and interchangeable product is more easily produced than with any other pipe standard in existence.

Suspend Freight Pre-Payment Order

Pending Further Investigation Canadian Business Men Will Not Be Compelled to Carry Out Railways' Demand

Washington. — Regulations proposed by railroads requiring prepayment of freight charges on traffic to points in Canada were ordered suspended from August 18 to December 16, by the Interstate Commerce Commission, pending investigation.

Ottawa.—News of the suspension of the order of United States railways requiring the prepayment of freight on commodities consigned to Canadian points will have a welcome sound to Canadian business men and others who had complained to the Government here and also the Board of Railway Commissioners. The latter body took up the matter, and it is understood the situation was thoroughly gone into during the recent visit of the chairman to Washington.

Canadian business men protested that if they were required to prepay in the United States currency the freight rates on goods not only to the border, but also over Canadian lines to their destination, this meant a hardship to them in the present exchange conditions. The prepayment in American funds practically added from 14 per cent. to 15 per cent. to the cost of freight, and consequently to the cost of goods which had to be retailed in Canada.

In dollars and cents, the saving to Canadian buyers of goods from the United States will, it is stated, reach huge proportions, even during the period of suspension from Aug. 18 to Dec. 16.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

TENDERS

Tenders will be received by T. L. Church (mayor), chairman of Board of Control of the city of Toronto, up to Sept. 14, 1920, for installation of sanitary conveniences in a number of dwelling houses.

CONTRACTS AWARDED

New Westminster, B.C.—A contract has been awarded to Mr. J. P. McMurphy to install the plumbing system in the new technical school. The contract price is $5,010. Mr. McMurphy's tender was the lowest received.

WESTERN ONTARIO NEWS

In connection with extensive improvements to the Sunday School of the Empress Ave. Methodist Church at London the Wright Teale Co. has been awarded the plumbing contract and the McClary Mfg. Co. the heating.

* * *

E. G. Blair, of the sales staff at the Hydro Shop, London, has gone to Canton, Ohio, to take a position with the Hoover Sweeper Co., and W. A. Lane, also a Hydro Shop salesman, has joined the Bluebird Washing Machine Co. at Brantford.

* * *

Clark Johnston, Port Bruce, Ont., wants prices at once on heating and plumbing for new store building he will erect.

* * *

In connection with waterworks extensions to be made at London, Ont., E. V. Buchanan, general manager of the Public Utilities Commission, wants prices immediately on twenty tons of half-inch lead pipe, 15,000 feet of six-inch cast iron water mains, 5,000 feet of 10-inch and 5,000 feet of 8-inch, also quotations on an electrically-driven pump with capacity of 500,000 Imperial gallons daily.

* * *

Engineer Farncombe, Dominion Savings Building, London, wants prices on piping and waterworks supplies in connection with new waterworks system being installed at Dresden, Ont. Contract for new electrical pumps has just been awarded to the Canadian Fairbanks-Morse Co. and for large storage tanks to the Canadian Des Moines Steel Co. of Chatham, Ont.

* * *

The School Board at Glencoe, Ont., want prices at once on a new heating system. W. G. Murray, Dominion Savings Building, London, is preparing plans for remodelling the school and heating system.

* * *

Tenders will be received until September 6 for the new $250,000 Sick Children's Hospital to be erected at London, Ont., by the Daughters of the Empire. The heating and plumbing work, for which tenders will be called by Watt & Blackwell, Bank of Toronto, London, includes a forced hot water system (3 boilers, storage tank, 720 gallons capacity; shower baths, stand pipe, and hose for fire protection; 17 general lavatories, 11 surgeons' lavatories, 3 built-in tubs, 3 infants' tubs, 7 children's toilets, six adult toilets, 3 general bath tubs, 8 clinic sinks, circulating pumps and motors.

* * *

The wedding took place at London, Ont., on August 23 of John Eggett, of the Eggett plumbing Co., and Mrs. Annie Casburn of Toronto.

* * *

Plans are now being prepared at London, Ont., by Architects Ross & McDonald of Montreal for the new $1,500,000 hotel and tenders will be called in thirty days. Prices are wanted immediately on all heating, plumbing and electrical equipment. The hotel will be built by the Benson, Hines London Hotel Company, whose offices have been located in the Dominion Savings Building.

* * *

Tenders will be called in about three weeks for the first unit of the factory to be built at London, Ont., by the Republic Motor Truck Co. The first building will be of steel construction and cost $125,000. The entire plant is to cost $2,000,000 and work will proceed as rapidly as material can be secured. Prices on heating and plumbing are now wanted. Frank W. Ruggles, c-o Chamber of Commerce, Tecumseh House, London, is the general manager.

MARKETS ARE VERY HELPFUL

A recent letter from Jackson & Prescott, plumbers, Chesterville, Ont., states: "We find Sanitary Engineer market quotations alone are worth more than the price of the paper."

CONTRACT FOR FELDSPAR

Purchase of three feldspar properties in Hyla, Haliburton County, was made recently by American Molybdenite, Ltd. These are situated to the east of Wilberforce. The management of the purchasing company stated that contracts have been entered into with a manufacturer of sanitary enamelware in Ohio that calls for the delivery of one car of feldspar a day, averaging thirty-five tons. The enamelware concern in question is said to require three times the amount of the initial shipment, and this may be available when boilers and steam drills now on order have been delivered and set up at Hyla. It is reported that deposits of feldspar in New England that have been drawn on hitherto are becoming worked out, and new sources of supply are being sought, creating a new opportunity for the Ontario deposits.

Trade Combine is Alleged in Vancouver

A. Sheret Declares He Had to Send to England to Get "Medium Pipe"

VICTORIA, B.C.—A. Sheret, who owns a wholesale plumbing supply house here, told the Board of Commerce that a combine existing in Vancouver was endeavoring to prevent him from securing materials.

The witness added that he had to go to England to secure "medium pipe," which, under the law, must be used throughout Canada. If he did not get his supplies in England he was forced to "beat around the bush and get them from these firms unknown to them."

The combine against which he was protesting, said Mr. Sheret, existed in Vancouver. He laid before the Board a mass of correspondence which had passed between him and mainland firms to show that the alleged combine was endeavoring to keep him from securing goods.

Mr. Sheret was asked to take the matter up with the Board later when he could decide whether he would enter a formal complaint.

Plumbing Law Strictly Enforced

Inspectors in St. John, N.B., Very Active in Seeing that All Plumbing Complies with the Law—Local Plumbers Have Much Work on Hand.

ST. JOHN, N. B.—The law in St. John, N. B., is very strict with regard to plumbing and sanitary conditions. Some time back the inspectors of the water and sewerage department made an inspection of all the plumbing throughout the city, with the result that a large number of notices were sent out to the owners of property in which the plumbing and sanitary arrangements were not up to the mark.

A second tour was completed a few days ago, and an official report was made at the City Hall announcing that the majority of the owners of defective plumbing had complied with the law, but that a few citizens had disregarded the instructions of the inspectors, and in consequence their water supply had been cut off. Although the cutting off of the water had caused considerable inconvenience to several tenants, the department is firm in its intentions to compel obedience, and have all faulty plumbing put in shape before the winter sets in, ensuring an ample supply of water for the high levels during the winter. The department will cut off the supply in the cold weather as well as at present should any owner remain indifferent to bad plumbing after the matter has been brought to his attention.

Inspection revealed that some tenements were in a very unsanitary condition. These were brought to the attention of the Board of Health, and promptly dealt with. The St. John plumbers are all crowded out with work, several big jobs being under way. Their chief trouble is in getting skilled labor. Messrs. G. & E. Blake are just completing a big job for the York and Cornwall Cotton Mills, Ltd., who have built an addition to the factory, four storeys high, to accommodate a toilet for each floor.

ARMSTRONG CO. TENDER IS ACCEPTED

Dundas, Ont.—At a special meeting of the town council the recommendation of the sewer committee that the Armstrong tender at $1,500 be accepted, and that the work be done under the town engineer's supervision and direction was adopted.

The sewer will take care of the underdrain on King Street, which now discharges into the main sewer at the corner of King and York Streets. The storm sewer will be 700 feet long and will divert this to the creek on King Street East. It will also provide for the future, for when King Street is paved it can be extended to the Post Office and take care of the surface water from that point down, the water from above being carried across to the creek by the McMurrick Street sewer as at present.

Mr. Brewer, of Thomas Robertson Co., Ltd., Montreal, returned to his office on Monday, after a two weeks' summer vacation.

Mr. Miller, of the Lyman Tube and Supply Co., Montreal, who has been out of the city for a few days, returned to his office last Monday.

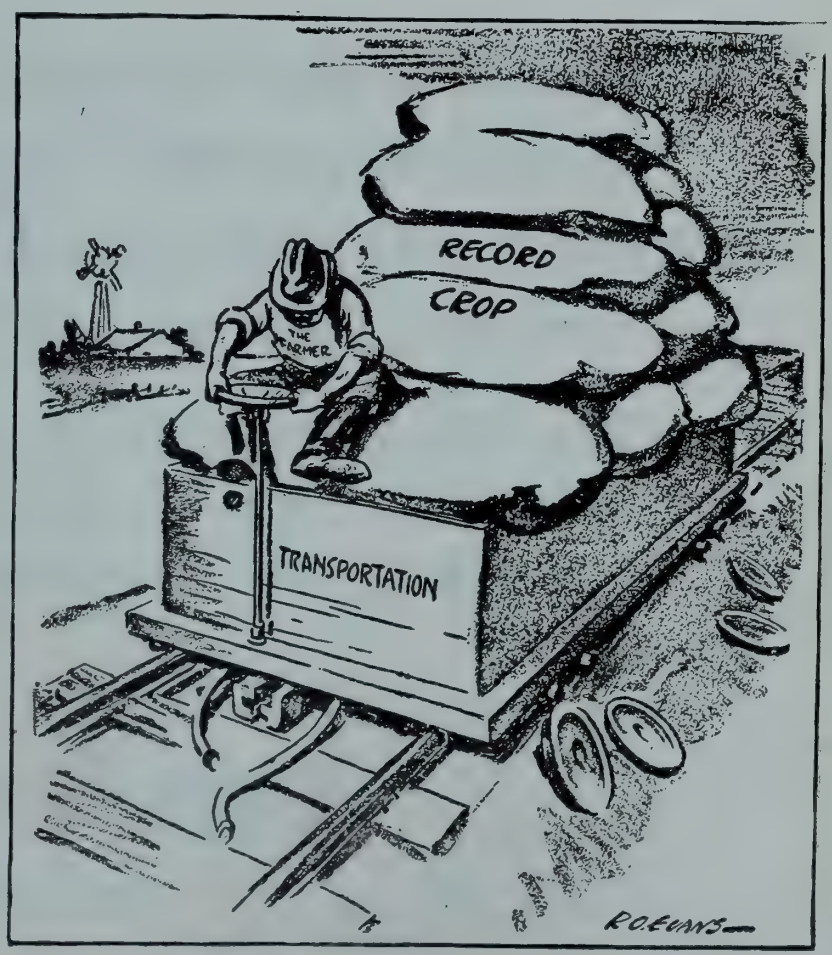
REPAIR AND EXTEND CHATHAM WATER PLANT

Chatham, Ont.—It is quite probable that the last has been heard of the public controversy over the source of Chatham's future supply of water. This question has been debated for over two years, but at the last meeting of the Water Board, it was decided to repair and extend the present plant which is used in filtering Thames River water, and to so arrange the plant that it will be capable of being extended from time to time to meet the growing requirements of the city. The intake may shortly be placed farther up the river. For many a year Chairman Harry Westman has been at the head of a movement, which has gained considered considerable local popularity, to go to Lake Erie for a supply of civic water.

HAMILTON SOCIETY OF SANITARY AND HEATING ENGINEERS HOLD PICNIC

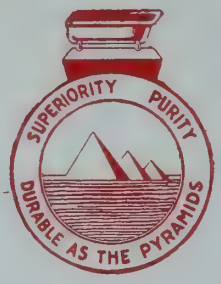
Hamilton.—On Saturday afternoon, August 14th, the Hamilton Society of Sanitary and Heating Engineers held a stag picnic at Wabasso Park, about two dozen members making the trip.

The ball game was very keenly contested and along about the sixth inning the weather man took a hand and stopped operations with a heavy thunderstorm during which the men had made away with the lunch, and after the weather had cleared a bit the game was finished. The final score seems hard to obtain as both teams claim a victory.



TO MARKET, TO MARKET—

—Evans in the Baltimore "American."



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EDITORIAL COMMENT

TO-DAY THE BUYER IS THE ULTIMATE PRICE FIXER

ABNORMAL merchandising conditions which have been brought about through chaotic conditions prevailing in the world's markets during the past few years have put retail business on a somewhat different basis than existed formerly. The trend of price is ever upward, there is much talk of profiteers and the laboring classes think they are being unduly exploited. The whole matter seems to be rooted in the establishment of what is a fair profit. Conditions affecting supply and demand, and their relation, have changed so greatly that to-day's business is described as being on the basis of the person who sells old clothes to the rag-man—nobody knows what anything is worth though everyone hopes to get more than the value of the article. It points out that it is easy for a man to convince himself that whatever price he charges is fair for every man who sells also buys, and his sales prices are often but a reflection of the impotence that he feels in buying. It is evident that under present conditions there is a great looseness of thought and expression. It is pointed out that the merchant who declares that he will "get his now while the getting is good" never does get his for his short sighted greed ends in financial wreck, because he does not see that the conditions which permitted him to make his killing have changed until all at once he is brought up with a sharp turn and everything is taken from him.

Dealing with the subject of price and profit fixing and their relation, it is stated that a necessary corollary to price fixing is the fixing of demand and points out that the next step is rationing and the next communism, for when it is said that an article must be sold at a certain price and it is ordained that each individual can buy only a certain amount of that article, this is virtually communism. Fixing profits is declared to be infinitely more viciously destructive of economic life than fixing prices.

In conclusion it is pointed out that the only possible method of lowering prices is by the stimulation of production. Times have changed since the days when the producer was beseeching the consumer to buy. To-day the buyer is the ultimate price fixer.

DECLINING MARKET REQUIRES CAREFUL HANDLING

THERE are many who hold the opinion that the peak of high prices in most commodities has been reached and that from now on prices will, if anything, decline. If this proves to be the case the situation calls for very careful handling. It is not difficult to make money on a rising market; but it is a very different proposition to carry on and meet one's liabilities on a falling market.

The good times and high prices we have enjoyed during the past few years have induced many people to go into business on their own account. A good number of these have not had the experience necessary to make a success of their venture under adverse conditions. Their stock in trade has been purchased at high prices, and owing to competition from older established merchants, whose cumulative cost has not been so high, they have been compelled to sell at a close margin of profit, and, therefore, have not been able to build up a reserve to carry them through a period of declining prices. This is the class of accounts that need careful attention.

EDITORIAL BRIEFS

THE most valuable of your intangible assets is good will. You cannot put your finger on it, but it is there and it plays a prominent part on the profit side of your ledgers. Good will can only be obtained, whether as buyer or seller, by a carefully built up reputation for fair dealing. To cancel orders arbitrarily or to return goods without cause—simply because by so doing one can escape an unforeseen loss—is to endanger one's reputation for fair dealing with the consequent loss of good will. And good will lost is difficult to regain.

Plumbing Trade Outlook is Bright

So Says J. C. Crawford, Newly Appointed Vice-President of the Standard Sanitary Mfg. Company — New Official Comes from Nashville, Tennessee.

STANDARDIZATION of plumbing goods in order to cut down the list of fixtures to the minimum requirements of the trade is the policy now being followed, according to J. C. Crawford, newly appointed vice-president of the Standard Sanitary Mfg. Company. In a recent interview with Sanitary Engineer Mr. Crawford stated that business in the plumbing trade to-day was good considering the circumstances of the times and he is of the opinion that the outlook for the future is very bright. Mr. Crawford accepted his present position in June of this year, having had many years' experience with the company. Starting in 1906 in the office of the company in Louisville, Kentucky, he was later promoted to take charge of the stockroom and later took charge of the plumbing department. In 1911 he became a travelling salesman. Moving to Nashville, Tenn., three years later, he took the position of manager of the company at that point, the last position held by him before coming to Toronto.

Encourage Iron Production in Canada

British Columbia Offering Encouragement for Establishment of Large Iron and Steel Industry on Pacific Coast in Way of Bounty. In case of 300 Ton Plant Would Mean About $1,000,000

BRITISH Columbia is offering encouragement for the establishing of an iron and steel industry on the Pacific coast and is offering a bounty for large interests to start operations there. The bounty now being offered by the Provincial Government for pig iron produced in British Columbia from local ores would mean, in the case of a 300-ton plant, about $1,000,000.

S. Fleming, of New York, president of the board of directors of the Canadian Collieries, Ltd., is still in the neighborhood of Vancouver investigating possibilities of manufacturing in and marketing iron and steel from that district. Mr. Fleming, together with a group of engineers and financial experts, has been in continual conference with Canadian officials on the merits of such an enterprise.

William Sloan, Canadian Minister of Mines, stated in a report:

"It is said that only the market question stands in the way of the establishment in British Columbia of an iron and steel industry. To my mind this should not be a stumbling block. If it is admitted, as it must be, that we have the magnetite ore and the necessary fluxes for the smelting of the same and the production of a high-grade of pig iron there is no further important problem facing those who would invest the capital needed for the launching of a moderately sized plant.

"The Canadian Collieries are better situated than any other corporation to undertake the enterprise. It is possessed of extensive coal fields on Vancouver Island, it has the coke ovens and also controls considerable iron ore-bearing areas."

BUSINESS MEN AND TELEPHONE RATE INCREASE

Montreal.—As far as Montreal business interests are concerned the application of the Bell Telephone Company for increased rates will doubtless be met reasonably. What the applicant company will have to show is that they must have an increase, justified by increased costs to operate. If this can be shown the average business man, Sanitary Engineer understands, will accept the burden of higher costs for both regular and long distance service.

Doubtless the frequent user of the service will have to face the music to the tune of greatly increased outlay. Logically, it would seem that there can be little real fault with such a plan, for it is a natural deduction that to that extent to which a service is employed in this relation must it be paid for.

Big Congress Will Meet This Month

Imperial Chambers of Commerce Will Meet in Toronto This Month, Opening Sept. 18

Arrangements have been completed for the ninth congress of Chambers of Commerce of the British Empire, which commences in Toronto September 18 and continues during the week following. It is seventeen years since the last gathering of the kind in Canada, and eight years since the representatives of Chambers of Commerce of the Empire have assembled. Delegates from all parts of the British Empire will be present.

The King is Patron and the Duke of Devonshire, Honorary President of the Congress. Lord Desborough is President and will preside at the meetings.

Problems arising from the war will be the chief subject of discussion. Numerous resolutions on matters of particular importance, such as commercial relations between the Mother Country and the Dominions; reciprocity with all parts of the British Empire; shipping, telegraphic and cable communications and trade marks, patents, etc., have already been submitted for discussion.

QUEBEC MANUFACTURERS INVITE ONTARIO VISITORS

Montreal.—At the meeting of the Quebec Canadian Manufacturers' Association here, it was decided to extend an invitation to the Ontario branch of the Canadian Manufacturers' Association to visit the Province of Quebec during next month in order to extend the Entente Cordiale between the two Provinces.

The party will be entertained at Sherbrooke, Three Rivers, Quebec and Montreal, and plans are under way for a tour covering many of the leading centres of the Province.

NEW BUSINESS

Toronto.—The Eclipse Plumbing and Heating Co. have been registered at Toronto.

BRITISH TIN-PLATE EXPORTS

It is of interest to note that there has been considerable falling off in the imports of tin-plate and galvanized sheets from Great Britain in the six months ending June, 1920, as compared with the same period before the war.

The statistics for the above periods are as follows:

	Tons		Value	
	1913.	1920.	1913.	1920.
Tin-plate	4,320	293	£ 69,125	£ 16,557
Galvanized sheets	18,475	2,338	273,932	124,298

Drafting for the Sanitary Engineer

(Fourth article of the series by ANDREW LOUCKS)

ALTHOUGH working drawings are usually drawn to scale, so that after equivalent dimensions may be taken by direct measurements, it is always advisable to supplement the scale by figured dimensions.

Specifications, as a rule, require that when there is a difference noted in the measurements ascertained by scale and those of the figures, the figured dimensions are to rule.

The reason that figured dimensions are considered to be more correct than the scaled measurements are many; but not the least of these reasons is that in actual construction work it is easy for a mechanic to make a mistake when he attempts to scale a drawing with the ordinary two-foot rule.

It often occurs that after the general drawings are completed the requirements of some detail may make necessary the increase or decrease of the amount of room provided at some location. In such a case much time may be saved by placing the dimensions of the required space on the drawing. The dimensions may not agree with the scaled measurements, nevertheless if the dimensions are not followed in preference to the scaled measurements some difficulty may be experienced later

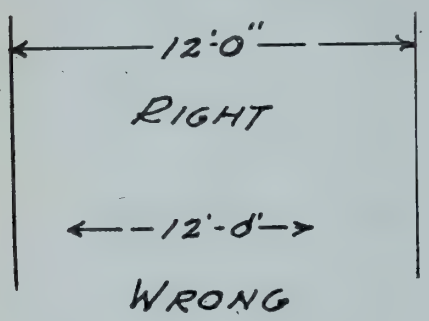


FIG. 1.

on in the work. It is not often that such an occasion occurs, yet it is always well to provide for such, and the best way of so providing is to watch the figured dimensions.

Figured Dimensions Check Scaled Drawings

Figured dimensions serve as a check on the scaled drawings. No matter how careful a draftsman may be he is at times likely to make an error in the scaled drawings. If he carefully checks the scale by means of figures he is almost sure to detect and rectify his errors.

At one time many working drawings were sent out that were nothing more than a general outline of the work. When such drawings came into the hands of a mechanic it was for him a case of "cut and try."

Now, with the general increase of technical training there has come a demand for exactness in the preparation of working drawings; and this demand is one that the rule-of-thumb draftsman, architect, or engineer can not understand, much less fill.

Another thing that is worth noting is that when drawings are properly figured the speed of construction is not so likely to be retarded by errors as it is where an over-elaborated drawing is touched up here and there with contradictory dimensions.

No craftsman worthy of the name will leave off the necessary dimensions for fear that they will disfigure his drawings. He will bear in mind that mechanical drawings are only "instruments of service," and that he is not making them for the purpose of artistic display.

It will require a little study before arriving at the conclusion of how a working drawing may be best figured; because the dimension lines must be of such a character that they will not become confused with the other lines on the drawing, and they must be disposed on the drawing so that one dimension line will not cross another dimension line when it may be avoided.

No more dimensions should be placed upon a drawing than are absolutely required. There is no use of repeating over and over again the same figures; but at the same time, figures should be placed where that they may be readily seen.

The draftsman should be very careful in checking his figured dimensions so that one dimension may not contradict some other dimension.

More than once it has been a builder's experience to find that the inside measurements of a house were greater than the outside measurements. We know of one case where the inside measurements were followed by the builder while he was erecting the exterior walls. Afterwards it was found that there was no room for the bathroom fixtures, nor for the stairway.

In another case a complete boiler room equipment was shown on the basement plan of a school building, but there was no room for a boiler having the dimensions specified.

These two examples are given to show how careful a draftsman must be in verifying one specified dimension with another.

Careless Errors Are Serious

Remember that errors caused by carelessness are worse than those caused by ignorance. There is an excuse for ignorance, but none for the mental sloth and irresponsibility of the draftsman who balks at figures.

A strange characteristic of some seemingly industrious draftsmen is the enthusiasm with which they spend hours of valuable time in adorning their drawings with needless frills and curves; but which rapidly evaporates when called upon to do some work of a mental nature. It would almost seem that the industry of this class of men might be better employed with an engraver's needle than with mechanical drafting tools.

We started out to write of the importance of figured dimensions on a working drawing; but we find that we have written much about the "industrious draftsman" who rarely puts a figured dimension on a drawing, unless it is for ornamental effect. We have written this for the benefit of those who may think the trade of the draftsman requires nothing more than skilful fingers.

In some of the articles following this, a few simple geometrical problems will be presented to the students of the course. We earnestly recommend the student to study the solution of these problems, because much of what will then appear must be thoroughly understood before the more advanced studies may be taken up.

Dimensions

The dimension figures on a working drawing should be so placed that there will be no chance of an error in their readings.

Fig. 1 shows how dimensions are sometimes placed on drawings.

The upper part of the figure shows the dimension line reaching from "out-to-out" of the measurements. The arrow heads are placed so that their points touch the "out-to-out" lines. This is correct.

The lower part of the same figure shows the dimension line as being too short. The arrow heads point off to some indefinite distance. This is incorrect; yet it is the way in which some draftsmen try to indicate a dimension.

Fig. 2 shows how, on a working drawing, the minor dimensions, contributing to one larger dimension, should be indicated. Here there is one dimension of 5 ft. 0 in., followed by a dimension of 3 ft. 0 in. These two dimensions total one dimension of 8 ft. 0 in.

When there are a great number of minor dimensions, the draftsman occasionally makes a mistake in their addition. Hence, a check should be made by first adding from one end of the line, and then adding from the other.

Dimensions made as in Fig. 2 are as they should appear on a working drawing. While there is no objection to marking the dimensions in this way on a sketch, a better and quicker way to mark them is as shown by Fig. 3.

In Fig. 3 there is shown what may be termed "distance dimensions." These dimensions differ from the "out-to-out" dimensions in that they are taken from one fixed point; and that the "over-all" dimension is indicated on the same line as the other dimension taken from that fixed point.

It will be noticed that, with the exception of the arrow head at the starting point, all of the arrow heads point in one direction. This shows that the dimensions are taken from the points of the reversed arrows. To make this clear: the dimension

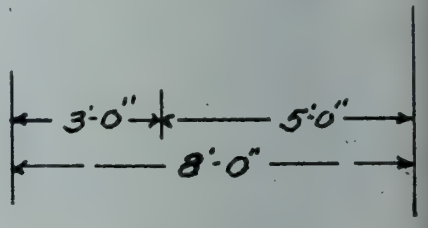


FIG. 2

shown between lines b and c of Fig. 3 is marked as 5 ft. 0 in. Now, if there had been an arrow-head on the right-hand side of line b, it would show that the distance between lines b and c was 5 ft. 0 in., but there being no arrow-head there means that this dimension is taken from the point of the reversed arrow-head, viz.: line a.

The readings of the dimensions in Fig. 3 are: three feet from a to b, five feet from a to c, and eight feet from a to d.

On a working drawing the dimensions should be indicated by reversed arrow-heads at lines b and c; then the dimensions would read: three feet from a to b, two feet from b to c, and three feet from c to d. An "over-all" dimension line of eight feet should be then drawn so as to show the total of the detailed measurements.

The Sketch

The large cut shows a sketch of the ground floor plan of the house described in the July 15th and the Aug. 1st number of the Sanitary Engineer.

In referring to this drawing we note that only a part of the required measurements are given. These figures are sufficient for our purpose of illustrating how the dimension lines of a sketch may be rapidly and correctly drawn.

In this drawing the arrow-heads are shown to indicate that "distance dimensions" are indicated; rather than "over-all" figures. Therefore we must bear in mind when making our working drawings from this sketch, that the dimensions of twenty feet, shown between points c and d on the

partition between the hall and living room, does not indicate that the distance between c and d is twenty feet; but that it indicates the distance that point d is from the reversed arrow at point a.

Measurements taken from one station point in the line of dimensions are not only made more rapidly, but also more correctly than those that are taken from a series of points. There is very little chance of any serious error occurring if the measurements are made by this method.

When making the working drawings, from a sketch of this kind, the draftsman should

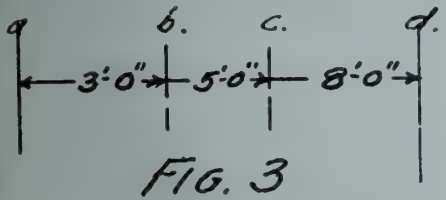


FIG. 3

remember that when sliding doors are shown, a somewhat greater thickness of partitions must be shown than the ordinary lath and plaster partition: the space of the door pockets must be allowed for. As a rule, a sliding-door partition is from ten to twelve inches thick. Ordinary partitions built up of 2 in. x 4 in. studs, lath, and plaster, are from five to six inches thick.

We note that certain figures are shown in rings, located at the pantry and living room. The figures shown within these rings indicate the height of the ceilings.

The low ceiling of the pantry is by reason of its location under the split level—or mezzanine—of the stairway.

On a working drawing, figures shown in circles, generally indicate datum levels rather than ceiling lights. Datum levels are not as often used as they should be. Nevertheless their time-saving value in construction work is so great that at a later date we intend to show how such levels should be indicated.

A Standard Indication

On the sketch of the ground floor plan the over-all dimensions of the living room are shown.

These dimensions are shown for the purpose of illustrating the standard system of noting the breadth of a room first, and then noting the depth.

The breadth of the room is fourteen feet, therefore, we mark first the figure 14. The depth of the room is twenty feet, so we then note the figure 20.

This same principle applies to the measurements of windows. For instance; if a window is three feet wide and five feet high, we note the width first, and then the height. The note for the windows should read 3 ft. x 5 ft.; not 5 ft. x 3 ft.

All through the drawing this system of indication should be followed in every case.

Although the over-all dimensions of the living room have been shown on the sketch of the ground floor plan, it is to be remembered that they have been here shown only for the purpose of illustration. It is not necessary to repeat the figures already indicated on the dimension lines. When a dimension is once given, that once should be sufficient.

Some Standard Dimensions.

When the draftsman purposes to make a drawing he should secure a catalogue showing the actual dimensions of the fixtures he wishes to instal. When such a catalogue can not be obtained the following dimensions may be taken as fair approximations.

The standard sizes for roll-rim enamelled-iron bath tubs are: Length, 4 ft., 4 ft. 6 in., 5 ft., 5 ft. 6 in., and 6 ft.

The over-all width of bath tubs may be taken as 30 in. to 35 in. Narrow tubs of 25 in. to 29 in. wide may be obtained.

The figures for the lengths of tubs are inside measurements; usually 1 in. to 2 in. should be allowed for the rim and overflow pipe.

Water closet bowls vary a great deal in their dimensions. The measurements given here are only an average.

Width of bowl: 13 in.
Depth of seat from wall: 22 in.
Height from floor to seat: 17 in.
Width of seat: 15½ in.

When a low-down tank is installed, the distance from wall to front of seat is usually about 28½ in.

When the doors of water closet compartments open out, the compartment should be at least 2 ft. 4 in. wide and 4 ft. deep. When the doors open in the compartment should be, at least, 3 ft. wide and 5 ft. deep.

Kitchen sinks vary much in size. The following sizes are ordinarily used: 16 in. x 24 in., 18 in. x 30 in., 18 in. x 36 in., 20 in. x 30 in., and 20 in. x 36 in. Sinks of these dimensions are usually 6 in. deep.

Slop sinks of cast-iron are: 16 in. x 16 in., 16 in. x 20 in., 18 in. x 22 in., 20 in. x 24 in., and, as a rule, 12 in. deep.

Laundry tubs are generally 2 ft. wide and 16 in. deep. Two part tubs are 4 ft. to 4 ft. 6 in. long.

Range boilers vary in diameter from 12 in., for a 30-gallon boiler to 20 in. for a 120-gallon boiler.

Urinal stalls are 24 in. to 27 in. centre to centre of partitions. Depth of partitions, 29 in. to 22 in. Height of partitions, 4 ft. 3 in. to 6 ft. 9 in.

Corner basins are 12½ in. x 12½ in., 15 in. x 15 in., 15 in. x 16 in., 19 in. x 19 in. The size of the bowls corresponding to the above dimensions are respectively: 12 in., 14 in., 11 in. x 14 in., 11 in. x 15 in.

Lavatories made in one piece are commonly 16 in. x 20 in., 18 in. x 21 in., and 18 in. x 24 in.; the bowls are respectively, 11 in. x 14 in., 11 in. x 15 in., and 12 in. x 15 in.

The backs of the basins are, as a rule, 10½ in. high.

The usual height of wash basins from the floor is 2 ft. 6 in.

Foot baths, 22 in. x 18 in. x 17 in. Their depth is usually about eleven inches.

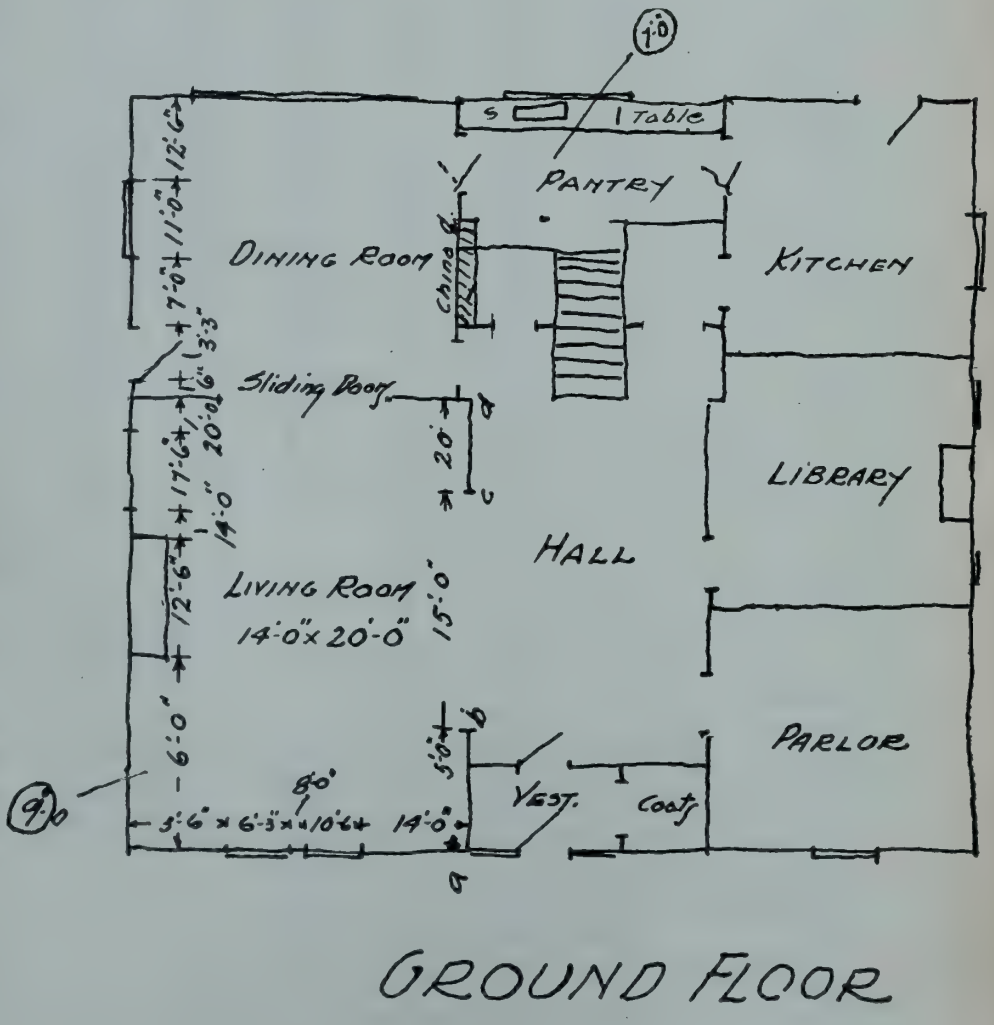
Seat baths average thirty-two inches long and twenty-seven inches wide.

Now remember that these dimensions are approximate, and that the roughing in measurements **must** be obtained from the figures given in the manufacturer's catalog.

Heating boilers vary so much in size with their patterns that to give the dimensions of only a few of the boilers commonly used would take up more space than we have now at our disposal.

ROLL PIN PLATE IN TORONTO

Toronto, Ont.—While being shown over the Baldwin plant at Ashbridge's Bay, Imperial Press delegates learned that tin plate will be rolled in Toronto in three weeks' time, with 100 mechanics trained in the industry, most of whom come from Wales. It is stated that as soon as the staff is organized 800 or 900 workmen will be employed. A considerable proportion of this number will come from Wales, because of the skilled nature of the work. When things are in full swing in a year or two it is estimated about 6,000 men will be employed.



GROUND FLOOR

Building a Little Less Active in July

Permits Total $12,241,086 as Compared with $13,278,300 for June—Chief Depression in the East—Western Cities Experience an Active Period.

While there was an extensive gain in building throughout Canada during the month of July as compared with July, 1919, according to the value of building permits issued, there was a heavy decline in activity from the previous month, according to the same source of information. Building permits issued during the month of July reached a total value of $12,241,086 as against $8,587,536 for the corresponding month last year, and $13,278,300 for the month of June of the present year, or a decline for the past month of approximately $1,000,000. This condition is but natural, however, as there is generally a depression in the building trade in the midsummer months. Building totals for the year continue to be greatly in exces of the returns of last year, the total for the first seven months of 1920 being $67,915,971 as against $35,519,403 for the same period last year, or an increase of $32,396,568.

BUILDING PERMITS ISSUED IN JULY

Eastern Cities.

Maritimes—	July, 1920	July, 1919	Change	7 mos. 1920	7 mos. 1919	Change
Halifax	$ 530,173	$ 281,422	+ 248,757	$ 2,494,493	$ 1,926,958	+ $ 567,535
Moncton	112,605	315,295	— 202,690	646,935	1,435,231	— 788,296
Sydney	201,860	68,761	+ 133,099	508,667	388,275	+ 120,392
St. John	100,100	48,500	+ 51,600	624,050	138,500	+ 485,550
Quebec—						
Montreal	$ 1,105,785	$1,484,999	— 379,214	$ 9,660,000	$ 4,372,623	+ $ 5,287,377
Quebec	78,270	107,361	— 29,091	1,663,724	908,134	+ 755,590
Sherbrooke	21,600	29,200	— 7,600	2,126,708	448,150	+ 1,678,558
Westmount	149,625	88,622	+ 61,003	655,515	333,241	+ 322,274
Ontario—						
Brantford	$ 41,705	$ 73,375	— 31,670	$ 572,268	$ 506,875	+ $ 65,393
Chatham	28,300	145,202	— 116,902	272,754	194,607	+ $ 78,147
Galt	38,400	89,900	— 51,500	199,330	222,000	— 22,670
Guelph	42,470	23,903	+ 18,567	213,525	366,767	— 153,242
Hamilton	498,025	500,527	— 2,502	2,917,100	2,162,187	+ 754,913
Kingston	51,205	40,804	+ 10,401	465,940	380,664	+ 85,276
Kitchener	151,915	218,945	— 67,030	966,540	613,265	+ 353,275
London	188,195	171,200	+ 16,995	1,013,300	719,235	+ 294,065
Ottawa	484,836	247,955	+ 236,881	1,832,511	1,905,397	— 72,886
Peterborough	2,640	8,705	— 6,065	187,615	67,115	+ 120,500
Port Arthur	84,455	140,230	— 55,775	135,530	222,626	— 87,096
St. Catharines	127,450	81,830	+ 45,620	510,896	364,449	+ 146,447
St. Thomas	6,656	20,660	— 14,004	109,561	143,235	— 33,674
Stratford	57,795	22,180	+ 35,615	311,418	124,032	+ 187,386
Toronto	2,640,004	2,155,250	+ 484,754	15,570,225	8,518,287	+ 7,051,938
Welland	22,115	35,395	— 13,280	220,680	230,465	— 9,785
Woodstock	38,702	15,620	+ 23,082	200,376	68,198	+ 132,178
York Township	437,650	503,600	— 65,950	2,788,650	2,131,125	+ 657,530
Total 26 E. Cities	$ 7,242,536	$6,919,444	+ $ 323,092	$46,868,313	$28,891,641	+ $17,976,672

Western Cities.

Manitoba—						
St. Boniface	$ 46,300	$ 56,100	— $ 9,800	$ 295,645	$ 104,340	+ $ 191,305
Winnipeg	1,160,450	281,900	+ 878,550	6,595,900	780,550	+ 5,815,350
Alberta—						
Calgary	$ 277,000	$ 280,000	— $ 3,000	$ 2,017,400	$ 1,737,900	+ $ 279,500
Edmonton	1,042,789	199,160	+ 843,629	2,983,639	634,220	+ 2,349,419
Lethbridge	80,750	32,540	+ 48,210	156,190	110,145	+ 46,045
Saskatchewan—						
Moose Jaw	$ 809,105	$ 36,275	+ 772,830	$ 1,325,125	$ 274,810	+ $ 1,050,315
Regina	159,850	152,050	+ 7,800	1,592,400	798,510	+ 793,890
Saskatoon	573,750	60,475	+ 513,275	844,840	459,575	+ 385,265
Weyburn	.....	400	— 400	2,353,766	4,070	+ 2,349,696
Yorkton	86,750	3,475	+ 83,275	150,395	150,145	+ 250
Prince Albert	34,800	79,450	— 44,650	372,455	158,355	+ 214,100
British Columbia—						
New Westminster	$ 23,094	$ 29,000	— $ 5,906	$ 217,765	$ 95,225	+ $ 122,540
Vancouver	669,292	488,855	+ 180,437	2,294,567	1,224,326	+ 1,070,241
Victoria	134,720	26,915	+ 107,805	471,621	234,091	+ 237,530
Total 14 W. Cities	$ 5,098,650	$1,726,595	+ $3,372,055	$21,671,708	$ 6,766,262	+ $14,905,446
Gr. Total 40 Cities	$12,341,186	$8,646,036	+ $3,695,150	$68,540,021	$35,657,903	+ $32,882,118

Of the larger cities Toronto leads with permits reaching a total value of $2,640,004, compared with $2,155,250 last year. Montreal's total is $1,105,785 a considerable decline from the total of $1,484,999 a year ago. Winnipeg has experienced an active period with permits issued to the value of $1,160,450 as compared with $281,900, and Edmonton too is over the million mark with $1,042,789 against $199,160, or the remarkable increase of $843,629. Vancouver leads the Pacific coast province cities with permits valued at $669,292. Of the smaller cities Moose Jaw reports a substantial total of $809,105, as against $36,275, last year. The total for Saskatoon is $573,750; for Hamilton, $498,025;; Ottawa, $484,836; and Halifax, $530,173.

Western Cities Improve

The most pronounced improvement over conditions last year is reported in the case of the fourteen western cities with a total of $5,098,650, as against $1,726,595 last year. The record of the twenty-five eastern cities is $7,142,436 as compared with $6,870,941, or an increase of only $271,495.

The following are among the important buildings undertaken :

Moncton, theatre, $50,00; Sydney, church, $86,000; Galt, laundry, $30,000; Guelph, additions to Presbyterian Church, $8,000; Hamilton, school building, $50,000; school addition. $130,000; church, $25,000; office building, $35,000; factory addition, $25,000; Kitchener, theatre, $100,000; electric sub-station $10,000; London, addition to office building, $30,000; warehouse, $15,000; Port Arthur, pulp mill, $80,000; St. Catharines, car shops, $60,000; addition to factory, $2000; Stratford, dry kilns, $7,000; Woodstock, housing commission, 8 residences, $26,600; St. Boniface, cold storage plant, $25,000; Winnipeg, garage, $120,000; addition to St. John's College, $45,000; stores and offices, $147,000; two schools, $125,000; Calgary, Y.W.C.A., club, $150,000; hotel, $25,000; factory, $25,000; Edmonton, medical building, $750,000; Lethbridge telephone exchange, $53,000; Moosejaw, C.P.R. depot. $750,000; Regina, office building additions, $40,000; Saskatoon, normal school, $535,000; Yorkton, cold storage plant $70,000; Vancouver, theatre, $400,000; Victoria, storage and offices, $67,000; Ottawa, school, $165,000.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

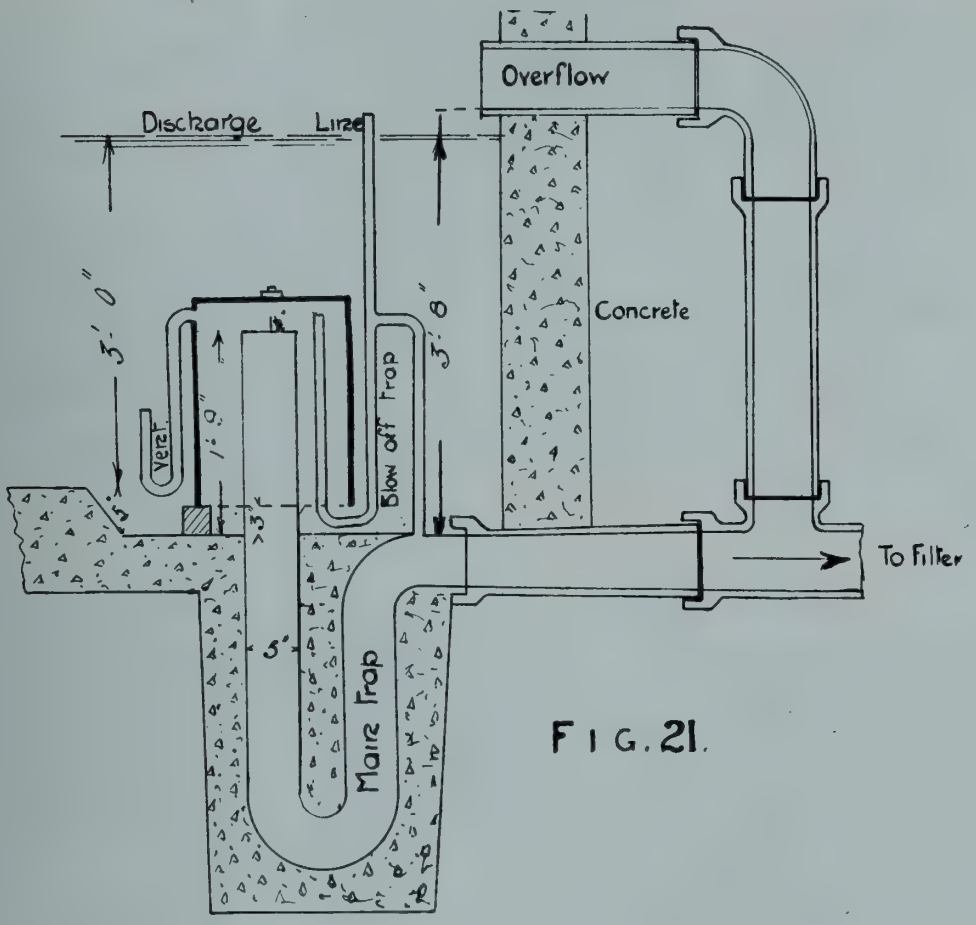


FIG. 21.

Article No. 15 of the Series—Illustration No. 21

The larger syphons are constructed a little differently from the smaller ones and Fig. 21 shows a Miller 5-inch syphon. The modus operandi is practically the same as that previously explained and the action is on similar lines, so it is not considered necessary to describe this again—the sketch fully explains its construction.

Provision should be made for emptying and cleansing out the tank from time to time and an easy access always provided, so that the tank and all its parts can obtain the periodical inspection it requires for successful working, and in any large installation duplicate tanks should be installed so that sewage can always be treated whilst cleansing operations are in progress.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

THE prices of nearly all kinds of plumbing and sanitary goods are holding firm and though the increases in price are perhaps not as numerous as usual there are many lines on which premiums have to be paid owing to the serious shortage in these goods. A little quieter tone in trading is in evidence though the volume of business done is said to be satisfactory. The tendency would seem to be to still higher prices, especially among the heavier goods. It is estimated that in the Pittsburgh trade district the higher freight rates will cost the leading steel producing interest from fifty to fifty-five million dollars and it is believed that their prices will be advanced from two to three dollars on their general products and that about fifty cents a base box will be added to tin plate.

The steel manufacturers state their costs have been surprisingly high of late, due principally to the tremendously high prices that have had to be paid for coal and coke. This is another factor that has to be taken into consideration and altogether it seems extremely unlikely that we can look for lower prices on iron and steel for some time to come.

Sheets, plates, boiler tubes and wrought iron pipe are especially scarce on local markets and the greatest difficulty is being experienced in filling orders. Many lines of pipe fittings are also noticeably short. Brass goods and enamelware are fairly plentiful. Solder and lead products remain firm in price.

Prospects for fall, if goods can only be obtained, are promising and collections are coming in well.

MONTREAL

THERE are few price changes to announce this week but the market is very firm. Enamelled ware seems due for an advance. The closing down of some of the iron and steel mills here has intensified a shortage in these lines that was previously most severe. Ingot metals remain firm. Brass and porcelain are about the only free lines on the market and a good supply seems to be at hand. The business is brightening up for the fall in steam fitting and plumbing and fixtures will follow as the autumn approaches.

The improvements reported in the iron and steel industry in the States with better transportation facilities is a hopeful feature.

A Shortage of Malleable Fittings

Montreal.

FITTINGS.—No change in the price of fittings is reported this week. There is considerable shortage of malleable fittings and a little on porcelain, but there is a very good supply of brass. Cast iron is also short in supply. The price of fittings is abnormally high, but seems to be quite justified in the present high cost of raw materials and manufacture.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ½-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	Plus 50%
Do., 2½-in. and larger	8%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Iron Shortage May Handicap Valve Sales

Montreal.

VALVES.—No change in the price of valves is recorded. Demand is very good for nearly all the lines in the steamfitting business at this season. There is a shortage of iron which may affect this line, but brass is in good supply and may in some cases relieve the strain.

Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Compression Work Better; Discounts Unchanged

Montreal.

COMPRESSION GOODS.—The demand for compression work is increasing as the Fall season comes on. The discounts, however, are unchanged. Some lines are however rather short in supply and the jobbers are anxious as to whether they will be able to meet demands.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%

A Shortage of Range Boilers Feared

Montreal.

RANGE BOILERS.—A very good business season is reported. The demand for boilers exceeds the supply and it is difficult to meet orders in many cases. The Fall business in the leading lines is very good this year.

30	gallon	$15.00
35	gallon	17.50
40	gallon	20.40
52	gallon	27.20
66	gallon	35.00
82	gallon	48.00
100	gallon	62 00
120	gallon	77 00

Lead Product Prices Remain Unchanged

Montreal.

LEAD PRODUCTS.—The prices of lead and lead products remain un-

changed this week with a very good demand on account of the active market for the Fall and Winter.

Lead pipe, per 100 lbs.	17 00
Lead waste, per 100 lbs.	18 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	List plus 30%
Lead wool, lb.	0 16
Lead sheets, 2½ lbs.	0 14
Lead sheets, 3 to 3½ lbs. sq. ft., lb	0 13¼
Do., 4 to 8 lbs., sq. ft.	0 13
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 37½
Solder, strictly, lb.	0 35½
Solder, commercial, lb.	0 33
Solder, wiping, lb.	0 32¾
Wire solder—	
40-60	0 37½
45-55	0 39¾
50-50	0 42¼
Zinc sheets, casks	0 16½
Do., broken lots	0 17

Steel and Iron Reported Very Short

Montreal.

STEEL AND IRON.—For some time there has been a scarcity of steel and iron but this shortage is intensified since the strike in the steel mills of this city. The shortage has become acute and is felt in all branches of the plumbing and steamfitting lines. So far behind have the supplies become that there is no doubt a shortage will be felt for some time to come. Prices are unchanged as yet, but there is sure to be a reflection of the scarcity in market quotations.

Iron finish machinery steel	5 35
Norway iron	13 50 15 00
Single reeled machinery steel	6 80
Spring steel	5 80
Sleigh shoe steel	5 30
Tire steel	5 50
Toe calk steel, per 100 lbs.	6 20
Band steel	5 30
Harrow tooth steel	5 45
Mining tool steel, per lb.	0 34½
Black diamond tool steel, per lb.	0 24½
Black diamond cast steel, per lb.	0 24½
Bar iron, base	4 95
Refined iron, per 100 lbs.	5 95
Mild steel	5 30
3-16 and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.	

Ingot Metals Firm and Unchanged

Montreal.

INGOT METAL.—No price changes have occurred on the market for ingot metal. Quotations are very firm.

COPPER.—The usual demand is evident for copper and prices are firm at 24 and 24½ cents per lb.

TIN.—While there is still difficulty in obtaining supplies of tin the market prices remain unchanged and firm.

LEAD.—Lead prices are steady and firm, the market seems to be in a healthy condition with only a fair demand, due to conditions prevailing during the summer seasons. Quotations are from 10¼ to 10¾ cents.

SPELTER.—This market is firm and steady at quotations of 11c per lb.

ANTIMONY.—No change is evident in the market for antimony, prices being firm at 12 to 16 cents per lb.

ALUMINUM.—Aluminum market is rather quiet in the summer season, but the market remains firm at quotations from 37 to 39 cents per lb.

European Market Open For Old Material

Montreal.

OLD MATERIAL. — On account of the strikes in the local steel mills there has been a tie-up in the market for old material. The demand for scrap metal has steadily fallen off. There has, however, been one very good effect of this emergency. A new market has been sought. Dealers have found that England offers a good price for scrap metal and for the first time quantities of scrap metal have been shipped from Montreal to England where a price is paid which is even higher than prices offered on local markets. This may prove a very important factor later in the prices offered for scrap metal.

Acute Shortage of Sheets and Plates

Montreal.

SHEETS AND PLATES.—The crisis in the iron and steel market in this city has not helped the shortage of steel or galvanized sheets. The market is in a poorer condition than ever as regards supplies. Manufacturers are unable to meet the demand. The market price, however, remains unchanged.

BLACK SHEETS—	
10 gauge	9 00
12 gauge	9 05
14 gauge	9 10
16 gauge	9 35
18-20 gauge	9 40
22-24 gauge	9 45
26 gauge	9 50
28 gauge	9 50
GALVANIZED SHEETS—	
U.S. Standard—	
10¾ gapge	13 00
28 gauge	12 60
26 gauge	11 25
22 and 24 gauge	12 05
20 gauge	12 05
18 gauge	12 05
16 gauge	10 75

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Higher Prices Likely on Enamelled Ware

Montreal.

ENAMELLED WARE.—There is a feeling on the market here that before the week is over higher prices will be announced on enamelled ware. Both the shortage of raw materials with consequent higher costs and increased prices on supplies due to higher freight rates are said to account for this. The Fall business is very promising, but the market is very strong.

Pipe Market Is Very Strong

Montreal.

STANDARD PIPE.—While the closing down of the iron and steel mills in this city does not directly affect the pipe market, it has an indirect influence. The American producer is called upon to meet an increased demand and the supply of piping suffers. Many jobbers are behind in their orders. There is no change in price, but the market is very strong indeed.

Standard Buttweld Pipe
List No. 46
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	23.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.75	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54

TORONTO

TORONTO, August 28.—Not many changes are reported during the past two weeks. The new freight rates have gone into effect this week on American railroads and it seems as if the consequences of this are being waited before announcing any changes, as apparently there is not the slightest doubt that the iron and steel industry will be affected.

While lists and discounts on many lines are unchanged prices are but nominal in a good many cases, as premiums have to be paid frequently to secure certain lines which are daily becoming more scarce in the market. Among the commodities that are difficult to procure in any quantity are Canada plates; sheets, both black and galvanized, boiler plates and tubes, wrought iron pipe and some lines of fittings. Range boilers, conductor pipe and eavetroughing are also very scarce. Enamelware stocks of baths, lavatories, closets, sinks, etc., while not short are not excessive and it is thought that the tendency on these lines is towards higher prices.

Manufacturers and jobbers report that though business is a little less they are getting all they can handle under the circumstances.

Collections are said to be satisfactory.

Enamelled Ware Held Firm and Unchanged

Toronto.

ENAMELLED WARE.—Trading is reported fair for what is regarded as a slack time of year in enamelled ware. Prices are holding firm without changes, though in some quarters it is thought likely that these lines may go higher in view of increased freight rates and scarcity of raw materials. Some factories report a difficulty in securing labor.

Manufacturers and jobbers alike are hopeful of the future although they have difficulty in obtaining supplies.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide			$37 05
Bath tubs, 5½ ft.			41 20
Lavatories—			
17x10" Apron F139 or P4045			11 05
18x24" Apron F154 or P3845 or P3847			17 00
18x21" Apron F169 or P4205			12 70
18x21" Roll rim F197, F199 or P4655-6			11 10
17x19" Roll rim F241 or P4345			9 05
Sinks, roll rim, 18 x 30 in.			16 60
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 40	$5 35	$5 30
18 x 30	6 20	6 50	6 10
20 x 30	7 10	7 05	7 00
Steel Baths with Steel Rim—			
4 ft. 6 in.			$16 25
5 ft.			16 25
Enameline Baths with Steel Rim—			
4 ft. 6 in.			$15 75
5 ft.			15 75
5 ft. 6 in.			16 25
6 ft.			17 50

Corrugated Sheets Hard to Obtain

Toronto.

CORRUGATED SHEETS.—While no actual change has taken place in prices of corrugated sheets they are still a very scarce article in the market and buyers may have to pay more than the prices quoted, which are only nominal, to secure delivery. As previously announced, 30 in. sheets have been adopted as the standard size on all guages lighter than 24.

Following are latest quotations:

Corrugated Sheets—		Per 100 Sq. Ft.
No. 28 gauge	....	11 00
No. 26 gauge	....	12 00
No. 24 gauge	....	17 00
No. 22 gauge	....	20 00

Closet Bowls Firm and Unchanged

Toronto.

CLOSET BOWLS.—The demand has been good and no change is recorded in prices, but deliveries of supplies have been none too good. If prices were to advance it would not come as a surprise to dealers.

Range Boilers Scarce But Unchanged

Toronto.

RANGE BOILERS.—These are an article that is getting shorter with each week. Stocks on hand are all reported to be low.

The demand continues fair, considering the time of the year and no change has taken place in prices.

Range Boilers—	Standard	Ex.Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	38 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Compression Goods and Valves Show no Change

Toronto.

BIBBS AND VALVES.—Jobbers report a fair amount of business in compression goods and valves. No change has taken place in prices and stocks at present appear to be medium. Prices on better known lines are given below.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	list plus 20%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Some Sizes of Radiators Scarce

Toronto.

RADIATORS.—Business has been fairly good in this line and no signs of any reduction in prices can be seen at present. Scarcity of raw materials and higher freight charges may have the effect of forcing prices up, but in the meantime the present list holds.

Certain sizes, notably 26 inch, are said to be very scarce and hard to procure.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 2 3in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 40% for hot water and 41% for steam.

Wall Radiators—5 in., $1.15; 6 in., $1.10; 7 in., $1.05; 9 in., $1.05; 12 in., $1.05. Discount 40%.

Stocks Small in Soil Pipe and Fittings

Toronto.

SOIL PIPE AND FITTINGS.—Stocks of these, it is said, are lighter than they should be, and the demand is steady. Prices are not changed and discounts are as follows:

Soil Pipe (medium and extra heavy), net.
Do., 2, 3, 5, and 6 in., add 10% to list.
Do., 8 inch, add 20% to list.
Fittings, 4 in., net list.
Do., 2 to 6 in., 20%.
Do., 8 in., add 20% to list.

Conductor Pipe Is Very Scarce

Toronto.

CONDUCTOR PIPE.—The scarcity in conductor pipe grows greater and dealers are hard put to get supplies. There has been no change and they are quoted at 25 per cent. above list.

PIPE (Conductor) Plain		
2 in., in 10-ft. lengths, list	....	8 00
3 in., in 10-ft. lengths, list	....	9 70
4 in., in 10-ft. lengths, list	....	12 80
5 in., in 10-ft. lengths, list	....	17 50
6 in., in 10-ft. lengths, list	....	21 30

Plus 25%.

Eavestrough Is Unaltered But Scarce

Toronto.

EAVESTROUGH. — The supply of eavestrough and elbows is very limited and delivery is hard to get owing to shortage of raw material. Prices are unchanged and are still 25 per cent. above list.

Boiler Tubes Not Easy to Obtain

Toronto.

BOILER TUBES.—There is no indication of any change for the better in the supply of boiler tubes. Transportation troubles still handicap importation and some dealers report being entirely sold out of stock. There seems every prospect that prices will go higher. Prices are unchanged but nominal.

	Per 100 feet	
BOILER TUBES—	Seamless	Lapweld
1 inch	$28 00	.....
1¼ inch	32 00	.....
1½ inch	33 00	.....
1¾ inch	35 00	.....
2 inch	37 00	32 00
2¼ inch	33 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	98 00	63 00

Stoves and Ranges Moving Out Well

Toronto.

STOVES AND RANGES.—The shipments of stoves, heaters, and ranges for fall are moving out well and prospects seem good though supplies are none too plentiful; in fact it looks as if those who delayed placing their orders are going to find a hard job to get what they require now. Shortage of material has hindered production and stocks in hand are so low that manufacturers are finding it difficult to get sufficient lots together for exhibition purposes at the fairs.

Furnaces Demand Out-paces Production

Toronto.

FURNACES.—The demand for furnaces has been greater than the manufacturers have been able to keep pace with and they are said to be behind on orders. With the amount of new building construction through the Dominion this year there have been good sales for heating installations.

Asbestos Products Firm; Some Lines Scarce

Toronto.

ASBESTOS GOODS.—The sales of asbestos products have been good and no particular shortage is reported except in asbestos roofings and shingles.

Plumbers' Oakum Steady and Unchanged

Toronto.

PLUMBERS' OAKUM.—This is having a fair demand and prices remain steady. Stocks are moderate and prices are $9.50 per 100 pounds.

Higher Prices on Stove Pipes and Elbows

Toronto.

STOVE PIPES.—Higher prices will be asked this fall for stove pipes and stove pipe elbows, and there seems every probability of a severe shortage, due to the scarcity of raw materials. New prices are as follows:

Stovepipes—6 in., $25.45 per 100; 7 in., $27.28.
Stovepipe Elbows (light)—6 in., $3.20 per doz.; 7 in., $3.50; Heavy, 6 in., $3.95; 7 in., $4.40; galvanized, 7 in., $7.30 per doz.

Little Trading Reported in Waste Materials

Toronto.

WASTE MATERIALS. — But little trading is reported in the waste market this week. Scrap iron is said to be in fair demand and prices are firm. Other metals are mostly dull with prices unchanged. Quotations are as follows:

WASTE MATERIAL

No. 2 busheling	$13 00
Stove plate, per ton	32 00
Yellow brass	0 10
Red brass	0 15¾
No. 1 machinery cast	33 00
Heavy melting steel	15 00
Heavy copper	0 17
Scrap zinc	0 06
Light brass	0 08
Wrought iron, No. 1, per gr. ton	15 00
Heavy lead pipe	0 06
Old rubbers, boots and shoes	0 06
Overseas lumbermen's rubber boots	0 04
Bicycle tires	0 01½
Automobile tires	0 02½
Heavy lead pipe	0 05¾
Tea lead	0 03

Dearth of Sheets Cause for Anxiety

Toronto.

BLACK AND GALVANIZED SHEETS. — The efforts to even partly fill orders for these is causing great concern to dealers. Manufacturers it is stated are six months and more behind with orders and jobbers fortunate enough to secure a few cases have goods sold before they arrive at their destination in many instances.

Shipments are expected to arrive shortly from England. Whether they will be sufficient to ease the situation remains to be seen.

The statement that there are no box cars to carry supplies is characterized as absurd.

Jobbers have to scour the markets to obtain small quantities and under the circumstances prices are but nominal.

BLACK SHEETS

14 gauge	$11 35
16 gauge	11 50
18-20 gauge	11 80
22-24 gauge	11 85
26 gauge	11 90
28 gauge	12 00
3-16 inch plate	
¼-inch boiler plate	

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	$12 00	$12 50	$12 00	$13 25
U.S. 28	11 45	12 70	11 45	12 85
U.S. 26	11 15	12 40	11 15	12 55
22 and 24	11 00	12 25	11 00	12 40
18 and 20	10 70	11 95	10 70	12 10
16	10 70	11 95	10 70	12 10
12 and 14	10 55	11 20	10 55	11 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Supplies Still Short of Bar Iron and Steel

Toronto.

BAR IRON AND STEEL. — The shortage of bar iron and steel continues with absolutely no sign of improvement. Mill after mill in the Pittsburgh district is said to be closed down on account of inadequate supplies of raw material. No advance has been made in prices although it is understood that higher prices may have to be paid in certain cases in order to secure supplies.

Nominal prices are as below:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	$ 6 00
Common bar steel, ¼ in. and heavier	5 50
Common bar iron, 3-16 in. and lighter	6 00
Common bar iron, ¼ in. and heavier	5 50
Angle base	5 75
Horseshoe iron	6 00
Tire steel	5 95
Band steel	6 00
Spring steel	12 75
Mining drill steel	31 95
Sheet cast steel	
Mild steel	5 75
Norway iron	16 25
Toe caulk iron	6 70
Sleigh shoe steel	5 75
Hoop steel	6 75

Pipe Fittings Are Firm and Scarce

Toronto.

PIPE FITTINGS. — Prices on pipe fittings are holding firm and like pipe there is a growing scarcity, especially among certain kinds and sizes. The demand has been fairly heavy and a big call has been noticed on pipe and fittings in rural districts for well work and water installation.

Supplies are coming to hand only slowly.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2 in.	8%
Do., 2½-in. and larger	5%
Nipples, up to 4-in.	50%
Do., 4½-in. and larger	40%
Do., running thread, 4-in. and under	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Waste Prices Firm; New Cotton Crop Large

Toronto.

WASTE. — Business in cotton waste has been fair with a falling off noticed lately and a tendency on the part of buyers to hold off in the expectation of lower markets. The cotton crop is reported to be much larger than was at first thought, but it is impossible to foretell what may happen if manipulators get control. Prices are unchanged and are as follows:

WASTE

Cream, Polishing	0 28

WHITE

XXX	0 23
XX	0 21½
X	0 20
Japanese	0 17
XXX	0 24
XX, grad.	0 22½
XLCR	0 21
X Empire	0 19½
X Press	0 17½
X Special	0 15½
XC	0 18½

COLORED

No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 19
Lion	0 17
Standard	0 15
Popular	0 13
Keen	0 11

Above lines subject to trade discount for quantity.

Lead and Zinc Products Unchanged

Toronto.

LEAD AND ZINC PRODUCTS. — There is a slight improvement reported in the lead market and though the demand for these products is not heavy jobbers are well satisfied with amount of business being done.

Prices are firm and seem to point to a continuance of present quotations.

The quotations on these lines are:

Lead pipe, list, per lb.	0 17
Lead waste pipe, list, per lb.	0 18
Do., over 8 in., list, per lb.	0 19
Lead traps and bends	add 30%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 13
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 43
Solder, strictly, lb.	0 35
Solder, commercial, lb.	0 33
Solder, guaranteed, lb.	0 38
Solder, wiping, lb.	0 33
Zinc sheets, per lb.	0 19

Wrought Pipe Very Scarce and Hard to Get

Toronto.

WROUGHT PIPE. — The situation in regard to wrought iron pipe, both black and galvanized, is getting worse every week. Insufficient supplies to meet even a normal demand are coming to hand, and jobbers and dealers profess an inability to see any relief in sight. Unless the unforeseen happens it looks as if the markets will be swept bare within a very few weeks. Certain sizes are almost impossible to obtain and large mills are said to be shut down on account of the shortage of skelp and supplies.

List No. 46 is still the latest and quotations are as follows:

Standard Buttweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8 63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.01
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.17
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.75	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$ 38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2 66	2.66	3.16
8	2.49	3.07	3.07	3.64

9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4 39	4.39	5.21

New List Out on Tinners' and Coopers' Rivets

Toronto.

IRON RIVETS.—New lists are issued on black iron rivets and base price is on 200-pound kegs; for 100-pound kegs add 1 cent to list, 50-pound boxes 3 cents, 5 and 10-pound packages, 5 cents, and 1-pound packages, 8 cents per pound to list.

See tables on page 38.

Wrought Pipe Prices Again Marked Up

Toronto.

INGOT METALS.—Prices locally have been unchanged for ingot metals, and trading has been comparatively small. A waiting mood seems to have struck buyers, both consumers and dealers.

LEAD.—The outside markets are reported easier but unsettled. Buyers appear to be awaiting developments. Local quotations are:

COPPER.—The copper market has been dull and prices are unchanged. There is said to be large quantities required for export. Price for casting copper is 24 cents.

ANTIMONY.—Demand has been quiet and prices firm. Local price is:

TIN.—This has taken a slump on London markets but American markets seem disinclined to follow suit. While it is apparently a little easier, current quotations here range from 56 to 58 cents per pound.

SPELTER.—Zinc has become about the only firm metal on the market, and it is expected that the shortage will eventually manifest itself. To-day's prices are:

ALUMINUM. — Prices remain unchanged in local market and trading is dull on American markets, and although aluminum from Europe has been offered at 3 cents a pound cheaper, little interest has been shown. Prices here are:

WINNIPEG

WINNIPEG, Aug. 27—The plumbing and steamfitting business continues good and supplies are coming in better now than they have for some time past, but there is still room for a vast improvement. It is still hard to obtain quantities of wrought iron pipe and sheets, and the tendency is for higher prices on these lines soon, on account of the advance in freight rates. The factories have advanced prices on brass goods and the new shipments coming in will have higher prices. Shipments of enameled ware are coming in fairly good and it looks as if there will be a sufficient supply to meet the expected big demands this fall. There is still a scarcity of boiler tubes and they will probably be difficult to obtain for some time. Range boilers are in good demand and the price is likely to go higher on account of the difficulty in obtaining plates for making them. Prices for the past two weeks have been very firm on nearly all lines and if the manufacturers continue to have difficulty in obtaining raw material, prices will be higher. Collections are coming forward more promptly and the prospects for fall business look very bright on account of the prospective good crop.

No Improvement Expected on Sheets

Winnipeg.

SHEETS AND PLATES.—It is intimated on all sides that there will be a scarcity of steel sheets and plates this fall. There seems to be no hope expressed by the manufacturers whatever for any improvement in the near future. In order to obtain supplies at the present time it is necessary to go the rounds and gather up mere trifling quantities. Prices quoted to-day are of no use for the morrow. Orders are only accepted subject to prices ruling on date of shipment.

BLACK SHEETS—

10 gauge	10 00
12 gauge	10 00
14 gauge	10 00
16 gauge	10 35
18-20 gauge	10 40
22-24 gauge	10 45
26 gauge	10 50
28 gauge	10 50

GALVANIZED SHEETS—

10¾ gauge	13 75
28 gauge	13 35
26 gauge	12 80
24 gauge	12 65
22 gauge	12 65
20 gauge	12 50
18 gauge	12 50
16 gauge	12 35

NOTE.—These prices are for full bundles, an extra charge of .... per 100 lbs. is made for broken lots.

Soil Pipe and Fittings in Fair Demand; Firm

Winnipeg.

SOIL PIPE AND FITTINGS.—There is a tendency for higher prices on soil pipe and fittings, although no change has been made as yet. The demand has been fair for the past week. If the demand does not increase to any great extent and with the present stock, the chances are prices will remain steady for some little time.

Soil Pipe—2 and 3 in.—15% advance.
Do., 4 in.—5% advance.
Do., 5 and 6 in.—15% advance.
Do., 8 in.—25% advance.
Fittings—2 and 3 in.—15% advance.
Do., 4 in.—20% off.
Do., 5 and 6 in.—15% off.
Do., 8 in.—25% advance.

Fittings Lists Firm; Demands Are Fair

Winnipeg.

FITTINGS.—The market is firm and the demand is fairly good. There is no doubt but what the conditions will remain the same if raw material is forthcoming.

Prices Still Hold Firm on Valves and Fittings

Winnipeg.

VALVES AND FITTINGS.—Prices are still holding firm on this line, although manufacturers are advancing some of their prices and it is expected before long when new shipments arrive that it will be necessary to advance the price.

Bath Cocks, Compression—30% off.
Roundway Stop and Waste Cocks, standard—18% off.
Brass Steam Cocks—10% off.
Globe, Angle and Check Valves, standard—10% advance.
Basin Cocks, Compression—18% off.
Do., Quick Opening—33 1-3% off.

Wrought Pipe Prices Again Marked Up

Winnipeg.

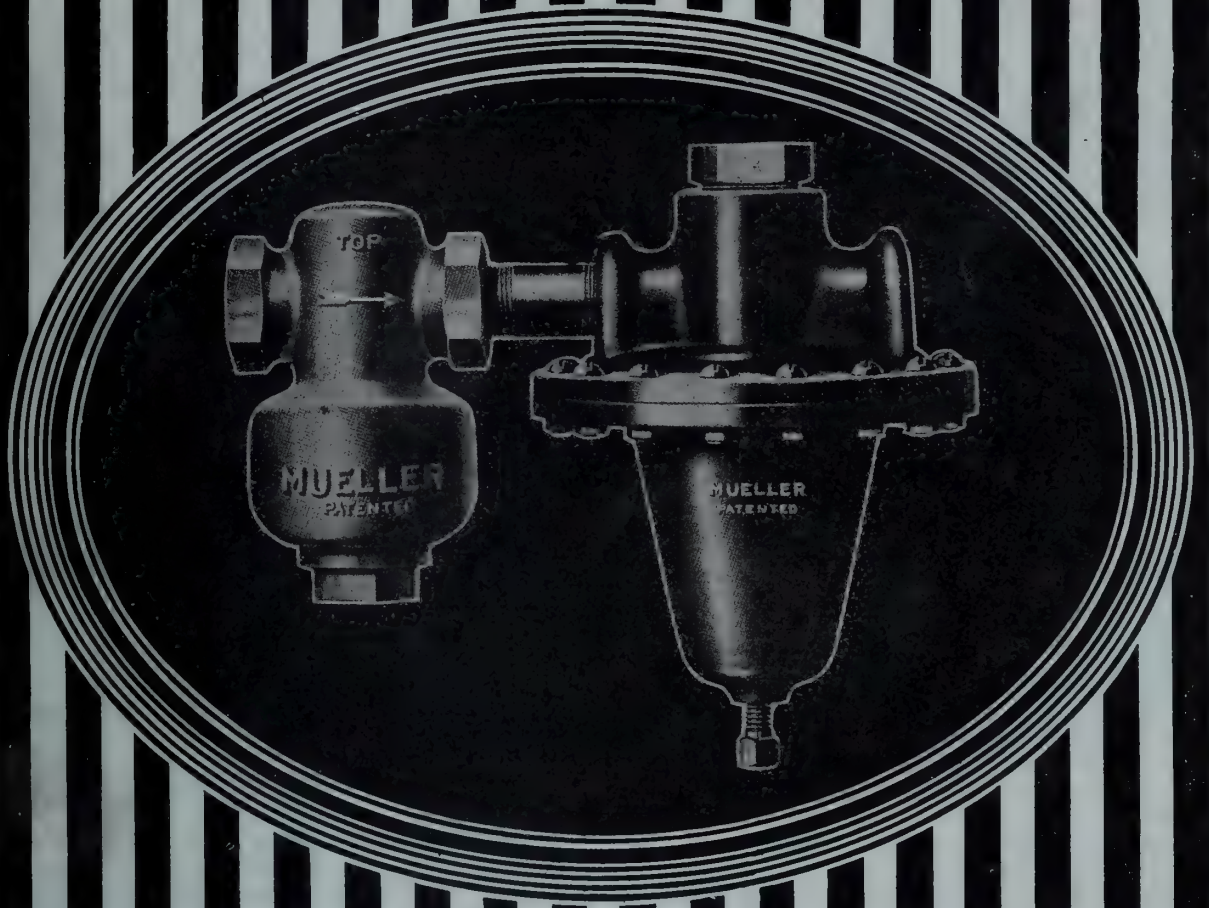
WROUGHT PIPE.—Further advances have again been made on wrought iron pipe.

The situation has little prospect of an early relief as regards supplies, deliveries and other conditions and while in the majority of cases manufacturers are willing to sell with the privilege of delivery 4 to 6 weeks after receipt of order, there is some indication that this period may be lengthened and purchasers will have to wait probably several months for regular size orders, while special large orders may have to be arranged specially.

The following is a list of the new net prices on the best known lines:

BLACK PIPE
f.o.b.

Size ins.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat. Add to Winnipeg price	Saskatoon Add to Winnipeg price	Regina Add to Winnipeg price	Brandon Add to Winnipeg price
⅛	$ 6.17	$ .25	$ .16	$ .14	$ .09
¼	5.76	.43	.28	.24	.15
⅜	5.90	.57	.37	.31	.20
½	7.88	.85	.55	.47	.30
¾	9.77	1.14	.73	.62	.40
1	14.40	1.68	1.09	.92	.59
1¼	19.53	2.29	1.46	1.24	.79
1½	23.40	2.73	1.75	1.48	.94
2	31.50	3.68	2.35	1.99	1.27
2½	50.94	5.82	3.73	3.16	2.01
3	66.60	7.62	4.90	4.15	2.64
3½	84.60	9.20	5.85	4.95	3.15
4	99.90	10.89	6.93	5.87	3.74
4½	119.25	12.64	8.12	6.87	4.38
5	139.05	14.81	9.43	7.98	5.08
6	180.00	19.19	12.20	10.32	6.57
7	263.70	23.77	15.13	12.80	8.15
8L	277.20	25.00	16.25	13.75	8.75
9	382.50	34.19	21.91	18.54	11.80
10L	354.60	32.00	20.80	17.60	11.20



Put Your Problems Up To Mueller Experts

Mueller makes a variety of Reducing and Regulating Valves for water, steam, gas, air, oil and ammonia—a style to meet every demand—but different conditions require different types of valves.

To insure satisfactory service each valve must be (1) the right kind, (2) the right size, (3) properly assembled (4) properly protected.

Mueller Regulators and Strainers

meet the requirements—and when installed under our direction, are fully warranted and will give satisfactory service.

The Mueller corps of experts will gladly solve your special problems without charge—and will send you complete information regarding Mueller Reducing and Regulating Valves and Strainers upon request.

Styles A-5040 and A-5010 illustrated above.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Ill., U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

Galvanized Pipe

Size Ins.				
⅛	$ 8.64	$ 0.25	$ 0.16	$ 0.14	$ 0.09
¼	8.10	.43	.28	.24	.15
⅜	8.24	.57	.37	.31	.20
½	9.50	.85	.55	.47	.30
¾	12.06	1.14	.73	.62	.40
1	17.82	1.68	1.09	.92	.59
1¼	24.12	2.29	1.46	1.24	.79
1½	28.80	2.73	1.75	1.48	.94
2	38.84	3.68	2.35	1.99	1.27
2½	63.00	5.82	3.73	3.16	2.01
3	82.80	7.62	4.90	4.15	2.64
3½	103.50	9.20	5.85	4.95	3.15
4	122.40	10.89	6.93	5.87	3.74
4½	146.70	12.64	8.12	6.87	4.38
5	171.00	14.81	9.43	7.98	5.08
6	222.30	19.19	12.20	10.32	6.57
7	23.77	15.13	12.80	8.15
8	25.00	16.25	13.75	8.75

Wholesale

Terms in all cases 2 per cent. 30 days, or net 30 days, or net 60 days.

BOOKS ON HOT WATER HEATING

Wallace Neale, North Vancouver, B. C.—Can you give me the names of books on Hot Water Heating, etc.

Answer.—Practical Steam and Hot Water Heating. Practical Heating Illustrated. 500 Plain Answers to Direct Questions on Steam, Hot Water, Vapor and Vacuum Heating.

Above are by Alf. G. King, and published by the Norman W. Healey Pub. Co., New York.

Also Heat by Shealey; publishers McGraw-Hill Pub. Co., New York, and Kent's Heating Engineers' Pocket Manual.

The Annual Technical Society, Dept. H-61C, Chicago, U.S.A., also publish a 4-volume work entitled "Sanitary Heating and Ventilating Engineering."

Sound Systems for Figuring Turnovers

The Dealer's Problems Are Taken Up in the Following Article in a Way That Should Furnish Him With New Thoughts on the Value of Keeping Records, Particularly Now When Everything is So Uncertain in the Way of Buying and Selling.

NO matter how many dollars are put into a business, unless they are made to produce new profits they might better be left in the bank, or loaned on good security to some one who would pay the legal rate of interest. Idle dollars represent a continual loss, especially when they are tied up in stock that no one wants.

The Folly of Overbuying

We are told by commercial agencies that at least 90 per cent. of dealers overbuy because they do not know how their stock is moving. They lack the records that should tell them when it is necessary to buy certain lines and when it is not. And right here it is well to say that a large proportion of failures are due to this glaring business fault.

The number of times a year a stock of a business is turning may easily be figured by dividing the year's sales (figured at the cost of the goods) by the average value of the stock on hand during the year.

Safe Basis for Figuring

The cost value of goods sold last year in a certain store amounted to $50,000. This business showed that an average of $10,000 worth of goods was carried. Of course, there was more than this amount on hand sometimes, and less at others, but the **average** for the year—the only safe basis for figuring turnovers—was $10,000. This goes into $50,000 five times—or this business succeeded in making five complete turnovers.

Sales (at cost) $50,000
Stock 10,000

Turnovers 5

There is another way of figuring turnovers that in many cases is equally satisfactory. That is, to take the total sales, at selling price, and divide by the retail value of the stock.

Sales (at selling price) $75,000
Stock (at selling price) 15,000

Turnovers 5

A very natural mistake can be made—has been made—in some cases where a dealer takes his total sales at retail and his stock at cost and attempts to find the number of times his capital has turned. See what happens:

Sales (at retail) $75,000
Stock (at cost) 10,000

Turnovers 7½

This is an easy way to make a few more stock turns, but it isn't worth much as an accurate reflection of the condition of the business. And figures like these must be accurate if they are worth anything at all.

RIVETS—STANDARD HEADS ONLY

List Price Per Pound in 200-lb. Kegs. **List effective August 9, 1920.**

Size	Wire	6 to 3¾	3½ to 2½	2 to 1	⅞ and ¾	⅝ and ½	7-16	⅜	11-32	5-16	9-32	¼	7-32	3-16	5-32	⅛	3-32
	7-16	17	17	15	15½	16	17	18	19	20	20	..	..	..	..	..	..
	3-8	17	17	15	15½	16	17	18	19	20	20	..	..	..	..	..	..
	11-32	18½	17½	15½	16	16½	17	18	19	20	20	..	..	..	..	..	..
	5-16	18½	17½	15½	16	16½	18	18	19	20	20	..	..	..	..	..	..
	1	19	18	16	16½	17	19	19	19	20	20	..	..	..	..	..	..
9-32 or	2	19	18	16	16½	17	19	19	19	20	20	20	21	..	..	..	..
	3	19	18	16	16½	17	19	19	19	20	20	20	21	..	..	..	..
	1-4	19	18	16	16½	17	19	19	19	20	20	20	21	21	..	..	..
	4	22	20	17	17½	18	19	20	20	20	20	20	21	21	22	..	..
7-32 or	5	22	20	17	17½	18	20	20	20	21	22	22	23	23	24	24	25
	6	22	20	17	17½	18	20	21	21	22	22	23	24	25	25	25	26
	3-16	22	20	17	17½	18	20	21	21	22	22	23	24	25	26	27	28
	7	..	..	17	17½	19	20	21	21	22	22	23	24	25	26	27	28
5-32 or	8	..	..	18	18½	19	21	22	22	23	23	24	25	26	27	28	29
	9	..	..	19	19½	20	22	23	23	25	25	26	27	29	31	32	
	10	..	..	20	20½	21	23	25	27	29	30	30	32	35	37	29	40
1-8 or	11	..	..	21	21½	22	26	29	30	32	33	33	35	39	42	44	47
	12	..	..	22	22½	23	28	31	32	34	36	37	38	43	47	52	57
3-32 or	13	..	..	26	26½	27	32	36	37	39	41	42	43	47	52	57	62
	14	..	..	28	28½	29	37	42	47	52	54	57	60	60	62	65	67

The following **Extras** are a part of the Rivet List:—

100 Pound Kegs .....add 1c to list
50 Pound Boxes .....add 3c to list
25 Pound Boxes .....add 4c to list
5 or 10 Pound Packages.....add 5c to list
1 Pound Packages .....add 8c to list

Lengths other than Standard and Special Heads in quantities less than 100 lbs., price on application, the following net extras apply: 75 to 100 lbs., 3c per lb.; 50 to 75 lbs., 4c per lb.; 25 to 50 lbs., 5c per lb.; 10 to 25 lbs., 10c per lb. Less than 10 lbs., 25c per lb.

The general list of Rivets as shown in the above List in regular Round, Flat, Wagon-box, Truss, Hame, Wheel, Cone Head or Counter-sunk, shall be considered as Standard.

Extra for Metallic or Wash Tinning, Copper or Brass Plating and Galvanizing. Prices on application.

TINNERS' AND COOPERS' RIVETS.

List effective August 9, 1920.

Size		List Price per Thousand in Pkgs.—Black	Size		Flat Head not Pointed Black	Countersunk Head and Pointed
		List Price per Pound in Bulk—200 Pound Kegs.				
8	oz.	.32	8	oz.	.52	.56
10	"	.36	10	"	.49	.53
12	"	.41	12	"	.46	.50
14	"	.45	14	"	.43	.47
1	lb.	.48	1	lb.	.40	.44
1¼	"	.54	1¼	"	.35	.39
1½	"	.62	1½	"	.33	.37
1¾	"	.67	1¾	"	.30	.34
2	"	.72	2	"	.28	.32
2½	"	.83	2½	"	.25	.29
3	"	.96	3	"	.24	.28
3½	"	1.09	3½	"	.23	.27
4	"	1.20	4	"	.22	.26
5	"	1.30	5	"	.21	.25
6	"	1.50	6	"	.20	.24
7	"	1.75	7	"	.20	.24
8	"	2.00	8	"	.20	.24
9	"	2.20	9	"	.19	.23
10	"	2.40	10	"	.19	.23
12	"	2.64	12	"	.17	.21
14	"	3.08	14	"	.17	.21
16	"	3.52	16	"	.17	.21
18	"	3.78	18	"	.16	.20
20	"	4.20	20	"	.16	.20

The following **Extras** are a part of the Tinners' and Coopers' Rivet list:

100 Pound Kegs .....add 1c to list
50 Pound Boxes .....add 3c to list
25 Pound Boxes .....add 4c to list
5 or 10 Pound Packages.....add 5c to list

Extra for Metallic Tinning or Wash Tinning quoted on application.

Fill Every Requirement

Morrison Gauges

Reliable, dependable, trustworthy gauges that have the confidence of engineering and mechanical men everywhere.

Morrison Gauges cover every purpose—for indicating or recording; pressure, temperature, altitude, revolutions, etc.

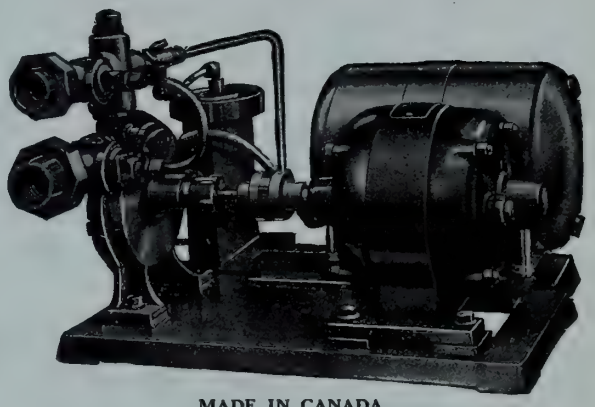
This salable line simplifies the merchant's work because Morrison Gauges will take care of any requirement of your trade.

James Morrison Brass Mfg. Company
LIMITED
93-97 Adelaide Street West - - Toronto

The enviable reputation of Morrison Gauges not only helps sales but builds prestige for your store.

Write for full particulars.

Westco Tankless Water System Costs the Farmer Less— Easier for You to Sell



MADE IN CANADA

A careful buyer and shrewd judge of values, the farmer will buy a Westco Tankless Water System in preference to all others once its low cost features are properly placed before him.

Explain to him the reasons why a Westco is cheaper to buy, install, and maintain. Suggest, as well, a few of its advantages—the no-storage tank feature, the time, trouble, and labor it saves him; point out the advantages of having running water in his kitchen, bathroom, dairy, barns, etc. The farmer will quickly realize its value.

The Westco System is giving splendid service in homes in the surburban and rural districts and on farms where electricity is available. It is a small, compact system—weighs less than 100 lbs., is 16½″ long, 14½″ wide, and 11″ high. It operates noiselessly, and yet will pump 300 to 500 gallons per hour.

It is entirely automatic. Open the tap—pump starts. Close tap—pump stops. There is nothing to get out of order, as it has no gears, no valves, no belt, and is self-lubricating. *It has only one moving part*—the impeller in the pump.

The Westco abounds in features vitally interesting to farmers and rural residents. Let us tell you how you can make big money handling this splendid system. Write us at once for particulars.

Westco Pumps, Limited, 707 Yonge St., Toronto, Ont.

A DEFINITE AIM

A Little "Straight Talk" to the Canadian Plumbing Trade

A careful analysis of many thousands of merchants disclosed the fact that hundreds of them had no definite aim in business. They were conducting their businesses in a haphazard manner—taking pretty much what came in to them in the way of trade.

In many cases they were eking out a mere living and were not building for the future. They had no well-formulated plans for building for the future on a sound basis. They were marking time, as it were, and very frequently some of them dropped out of the business procession. This is a regrettable state of affairs and still the same condition applies in almost every line of business.

The day of success for the merchant — who sells only what he is asked for is past—never to return.

The progressive merchants of to-day are solving merchandising problems. One Western plumbing firm has more than doubled its business by applying systematic merchandising in its sales plans. This company has a definite aim in business, and is multiplying sales and profits.

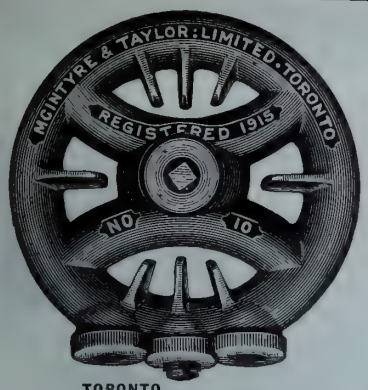
Most successful firms have a definite aim and a well-formulated plan for achieving it We have facilities for co-operating with our customers, and our aim is—

"QUALITY, EFFICIENCY, and SERVICE"

TRADE B.O.T. MARK

THE CANADIAN BRASS CO.
LIMITED
GALT, ONTARIO

CANADIAN BRASS GALT ONT



M.&T. COILS

Sold by the firms mentioned below—

TORONTO
Burrow, Stewart & Milne Co., Limited.
Canada Pipe & Steel Co., Limited.
Cluff Bros.
Crane Company.
Dominion Radiator Co., Limited.
The Empire Mfg. Co., Limited.
Gurney Foundry Co., Limited.
Jas. Morrison Brass Mfg. Co., Limited.
W. A. Porter & Co.
Jas. Robertson Co., Limited.
Standard Sanitary Mfg. Co., Limited.
Steel & Radiation, Limited.
Taylor-Forbes Co., Limited.
Warden King, Limited.

WINNIPEG
J. H. Ashdown Hardware Co., Limited.
Burrow, Stewart & Milne Co., Limited.
Crane Company.
Dominion Radiator Co., Limited.
Gurney North West Foundry Co., Limited.
Jas. Robertson Co., Limited.
Vulcan Iron Works, Limited.

VANCOUVER
Crane Company.
Gurney Foundry Co., Limited.
Taylor-Forbes Co., Limited.

CALGARY
J. H. Ashdown Hardware Co., Limited.

GUELPH
Taylor-Forbes Co., Limited.

HAMILTON
Burrow, Stewart & Milne Co., Limited.
Hamilton Stove & Heater Co., Limited.
C. Marks & Co.
Standard Sanitary Mfg. Co., Limited
Taylor-Forbes Co., Limited.

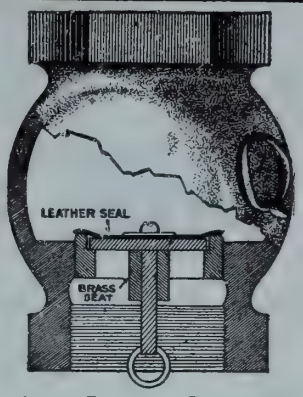
LONDON
The Empire Mfg. Co., Limited.
The Hobbs Hardware Co., Limited.

MONTREAL
Burrow, Stewart & Milne Co., Limited.
Dominion Radiator Co., Limited.
Gurney-Massey Co., Limited.
Jas. Robertson Co., Limited.
Steel & Radiation, Limited.
Thos. Robertson Co., Limited.
Taylor-Forbes Co., Limited.
Warden King, Limited.

ST. JOHN, N.B.
Enterprise Foundry Co., Limited.
Jas. Robertson Co., Limited.

McIntyre & Taylor Limited

MONTREAL 55 St. Francis-Xavier St. | **TORONTO** 501-3 Queen St. W. | **WINNIPEG** 156 Lombard St.



This is a "Q" Foot Valve

And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

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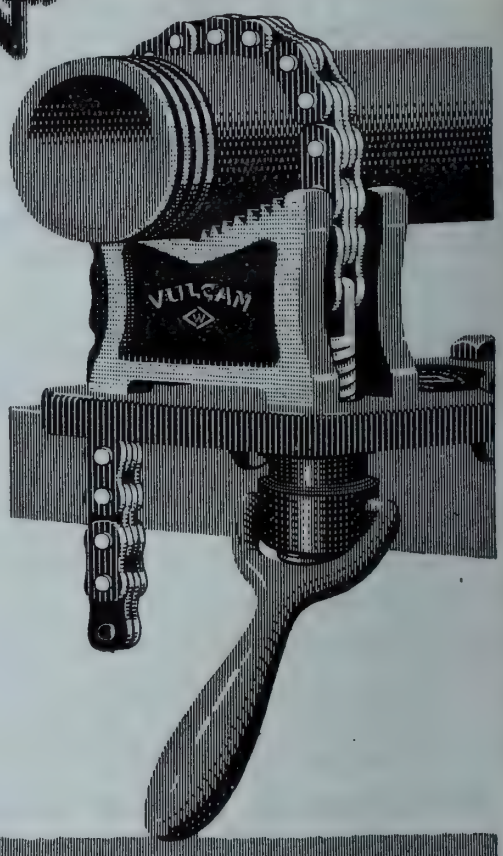

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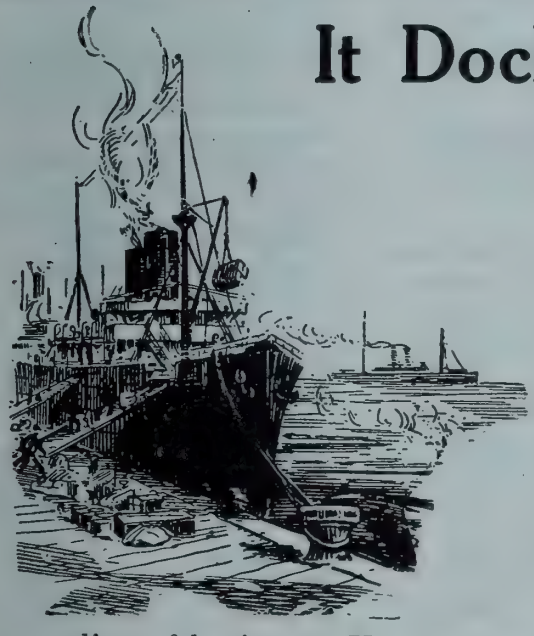

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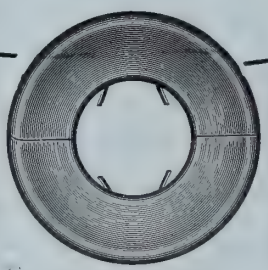

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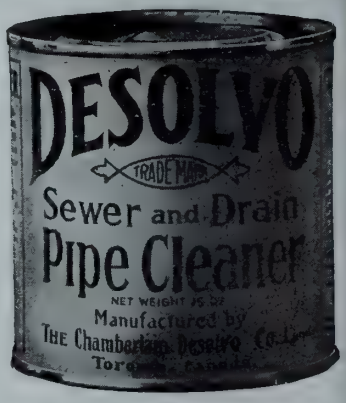

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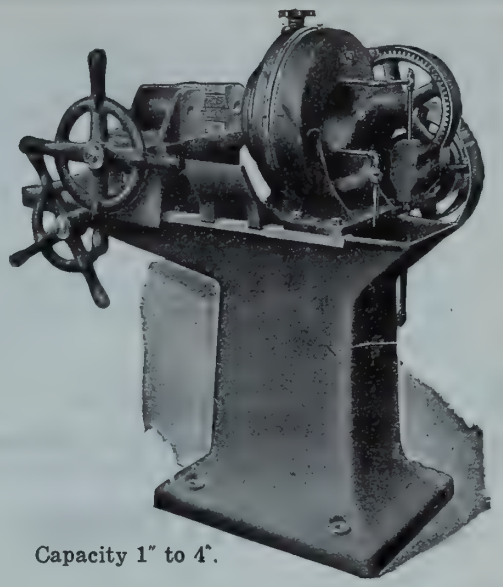

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Mr. Plumber—Get after the rural business.

With the Anthes Syphon you can give satisfaction.

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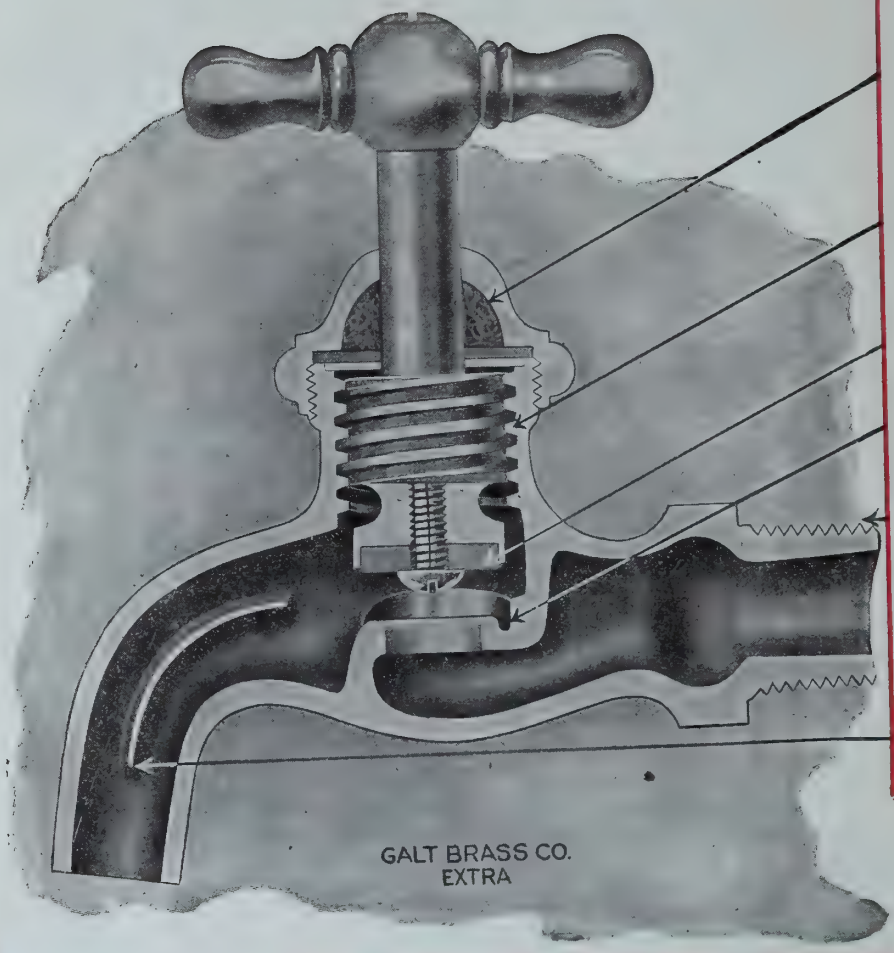

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Features

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Four Full Threads

Encased Washer

Raised Seat

16 oz. Red Metal

Anti Splasher

PERFECTO

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THAT'S the big advantage of getting PerfectO Bibbs and Cocks for **all** your jobs. Every one is going to be good—all are equally efficient. When you install PerfectO Brass Goods you protect your own reputation by insuring the satisfaction of your customer. You are confident of the service that the job will give—because PerfectO Brass Goods are not "better or worse"—they are the best always.

Our catalog shows the many types of PerfectO Fixtures made for various purposes. Write for it TO-DAY.

GALT BRASS COMPANY, LIMITED

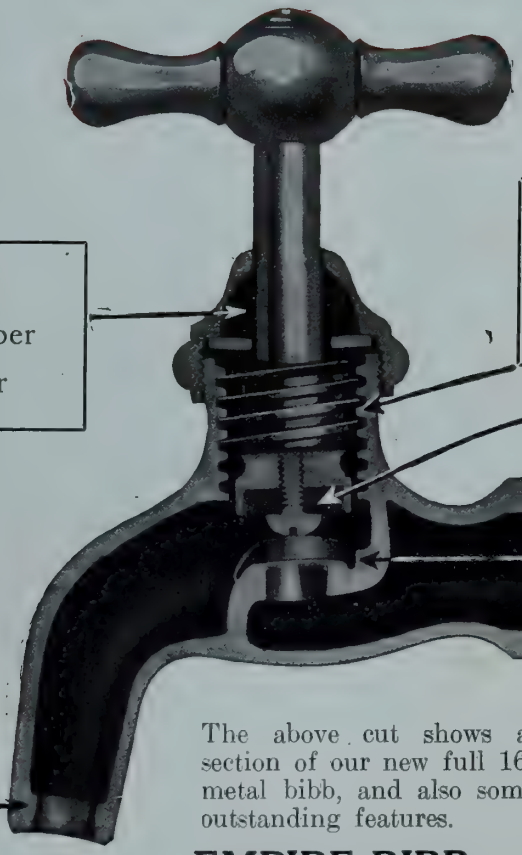
GALT - CANADA

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, SEPTEMBER 15, 1920 No. 18

Durable, Anti-Splash Empire Bibb



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The above cut shows a cross-section of our new full 16-oz. red metal bibb, and also some of its outstanding features.

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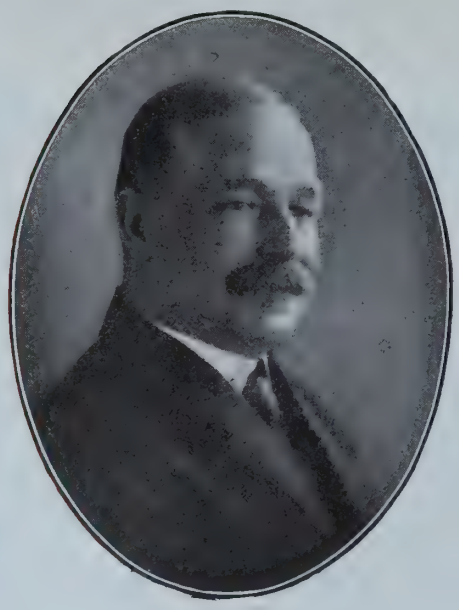

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Quality Service In Hand

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lder, The Aristocrat Laundry Tub
oset Tank

The Good Effect of Confidence

A Little "Straight Talk" to the Canadian Plumbing Trade

CONFIDENCE and self-reliance get us over the highest hurdles in the great 220 of life—especially with business obstacles.

Once there was a man in a desperate plight. The "wolf was at the door." We have all heard of that situation. We picture the distress of the man. We think of him faint with hunger, sitting by his empty, cheerless fireside, wringing his hands in misery over his misfortune.

But that is the conventional idea as we have been taught by others to think of it. It was not what happened in this case. This man was confident, self-reliant, and resourceful. When he found the wolf was at the door he unbarred it and as the wolf dashed into the cabin dealt him a blow on the head with the heavy oaken bar. Deftly stripping the hide from the wolf, he sold the pelt in the market for enough to furnish the stake that gave him his first real start.

This is the spirit that makes progressive plumbers bid on the biggest contracts, get them, and carry them out, against all obstacles. It is the spirit that you and I and all of us want to encourage in the plumbing trade in this day of progress. Let us all pull together for

"Quality, Efficiency, Service"

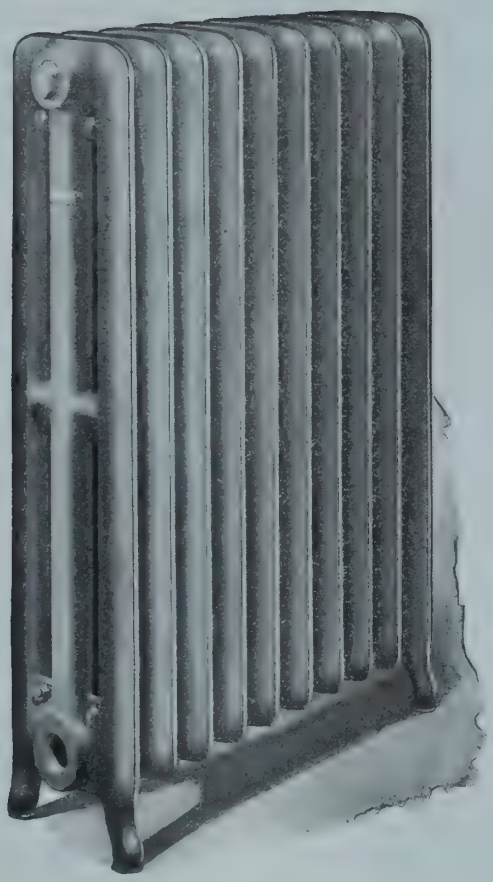
TRADE B.O.T. MARK

THE CANADIAN BRASS CO.
LIMITED
GALT, ONTARIO

CANADIAN BRASS GALT ONT

BOILERS
AND
RADIATORS
HOT WATER AND STEAM

ALL SIZES



FOR EVERY USE

BEAVER PATTERN

The Gurney Foundry Co., Limited
Toronto, Canada

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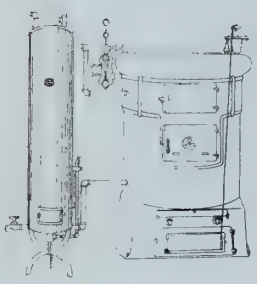
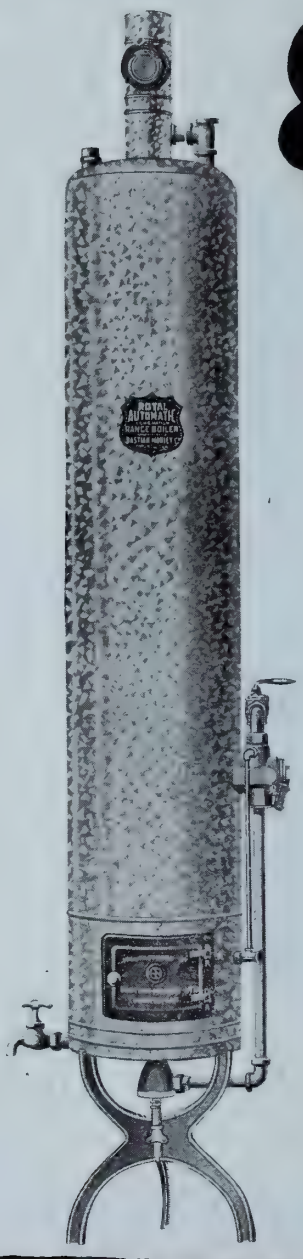
Here are the gas water



One of the many big advantages of the "Royal" Automatic over the coil type so-called instantaneous heater is the fact that, if desired, it may be connected to furnace coils or water back in stove for winter operation, saving the cost of a separate range boiler for that purpose. Both these heaters have proven their merits in years of actual service. There are no better heaters made.

Tested and Approved by the Good Housekeeping Institute Conducted by Good Housekeeping Magazine



Sold and installed by plumbers exclusively.

Two gas water heaters, automatic and non-automatic styles, that are going to put the gas water heater business back into the hands of the plumber, where it belongs.

THE Royal automatic is a Combination Range Boiler and Gas Water Heater built all together in one boiler shell. The heater is located directly under the boiler, as shown in small sectional view below. This is acknowledged to be the most direct and economical method known for heating water.

This apparatus is so perfectly adjusted that a tiny blaze, not much larger than the flame of a match, keeps the entire capacity of the tank steaming hot all the time.

When water is drawn in large quantities the big burner comes on automatically, reheats the water in the tank up to 130 degrees F. and automatically goes out again.

You have all the hot water you can use for every household require-

Bastian-

Plumbers' Heaters

ent all the time. Yet the amount of gas onsumed is very small and the price of the ater is so low that it is within the easy reach every home owner. The "Royal" Auto- atic requires no expensive gas feed instal- tion. It is built to operate perfectly from e ordinary house service.

he "Marvel" is similar to the "Royal" Automatic, t without the automatic control feature. It has e main burner. When hot water is required you ght this burner and in a surprisingly short time you ve a tankful of steaming hot water. Then the rner may be turned out, or if desired, may be rned low, keeping the water hot, ready for con- ant use.

he "Marvel" is designed to take the place of the old le, cumbersome and inefficient side-arm heater. is delivered to the plumber completely assembled, ady to install, is very simple to put into operation, d with labor considered, costs no more than the nge boiler with its impractical side-arm contriv- ce.

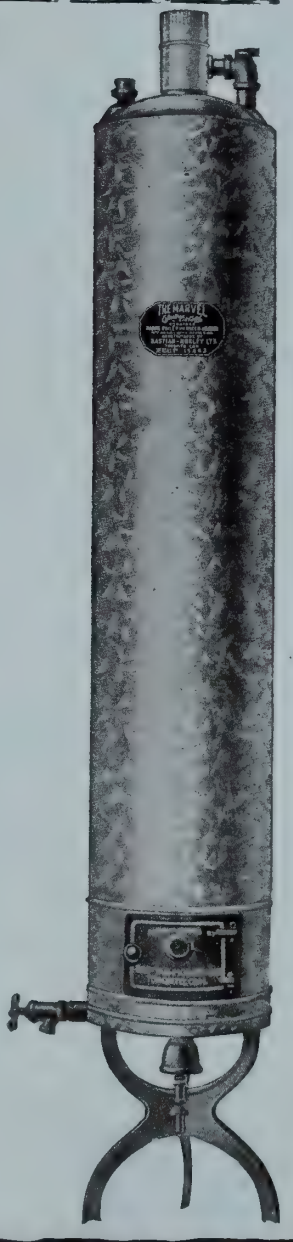
You must know all about these two wonderful heaters. Your customers will be inquiring about them and you must be prepared to explain all details and quote prices. Write us for descriptive literature and price list. No obligation. Just say, "Tell me all about the 'Royal' Automatic and 'Marvel' gas water heaters." Do this to-day.

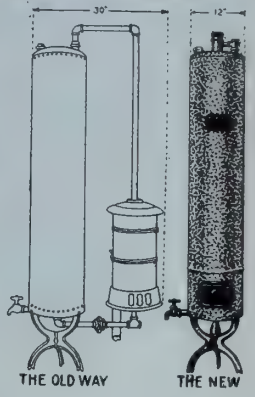
MADE IN CANADA

Factory and General Office :

anson Street and Hillingdon Avenue, TORONTO

The "MARVEL"

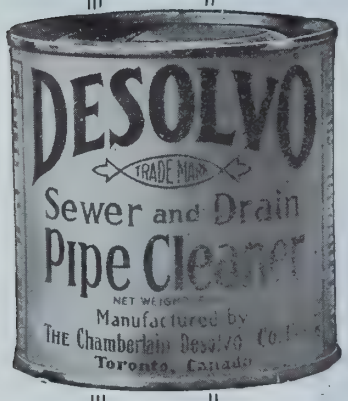




The old time side-arm combination is as inefficient as candle light was. It is a gas eater, awkward, slow, heats more air than water. In the "Marvel" two in one we have literally put the "kettle on the fire." This better relationship between the heater and the tank gives the highest efficiency and the greatest economy. Makes a neat, simple installation, ideal for bath or kitchen.

Tested and Approved by the GOOD HOUSEKEEPING INSTITUTE Conducted by GOOD HOUSEKEEPING MAGAZINE

Morley Ltd.



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The Salesmaker

Desolvo saves time and money, and will do the work quicker, with more satisfactory results than any other method. It is the handy cleaner for sewer and drain pipes, mixes with cold water and generates a very high temperature; it will thaw out frozen rain water leaders, frozen drains and soil pipe stacks, without injuring the pipes or plumbing fixtures.

Dealers will find it a profitable and salable line to carry.

Makers of the Famous K.K.

Chamberlain Desolvo Co.,
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L. F. Mayne,
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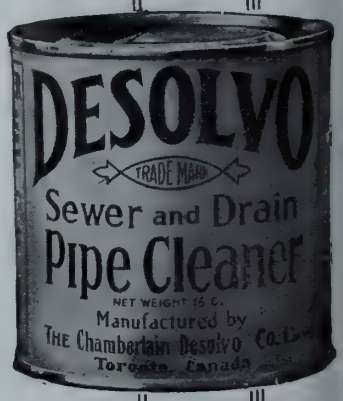

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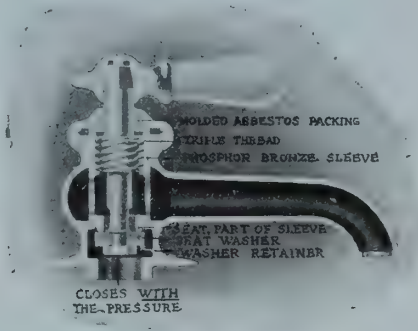

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Beauty and Strength

This popular pressure faucet has been designed on lines of beauty, combined with strength. Separate and distinct from all others. Closes with the pressure—not abruptly, so as to pound, but evenly and smoothly as a regular quick-opening pressure faucet.

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358 Beaver Hall Sq. Phone: Main 7531
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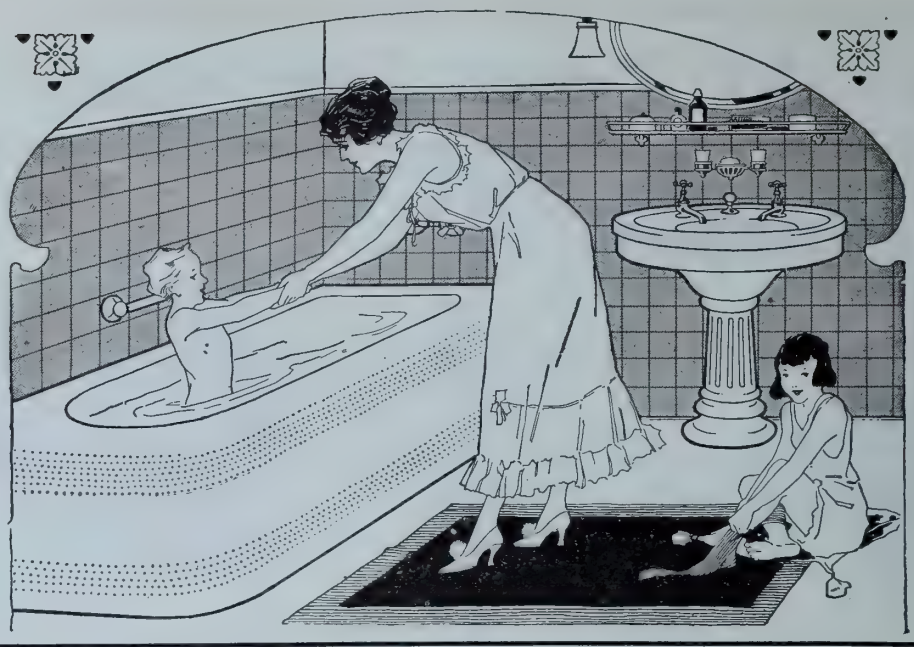

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The joy of the bath is enhanced by Standard Fixtures——

When bathroom fixtures are installed they become in a sense a permanent part of the home. This makes it most important that suitable fixtures be properly installed. The owner will then get a continual pleasure and benefit from his investment.

Standard Fixtures

reflect dignity in style and are made in designs appropriate for every home.

Standard Sanitary Mfg. Co.
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Hamilton Store:
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Montreal:
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Calgary:
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Vancouver:
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No Rivets **No Leaks**

The Electric Weld Principle

The Electric Weld Canadian-made Range Boilers are fully guaranteed, and are known the world over for high quality and faithful service. Our range boilers and tanks fulfill all requirements demanded by the trade. The electric welding on these range boilers produces a perfect fusion, a metal-to-metal joint like a blacksmith's forging, and gives strength to resist strain.

Electric Weld Range Boilers have been built for service—and they give it.

Canadian John Wood Mfg. Co., Limited

Grand Trunk Railway; Coxwell to Hillingdon Ave.

Toronto - Ontario

SANITARY ENGINEER

PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XIV. TORONTO, SEPTEMBER 15, 1920 No. 18

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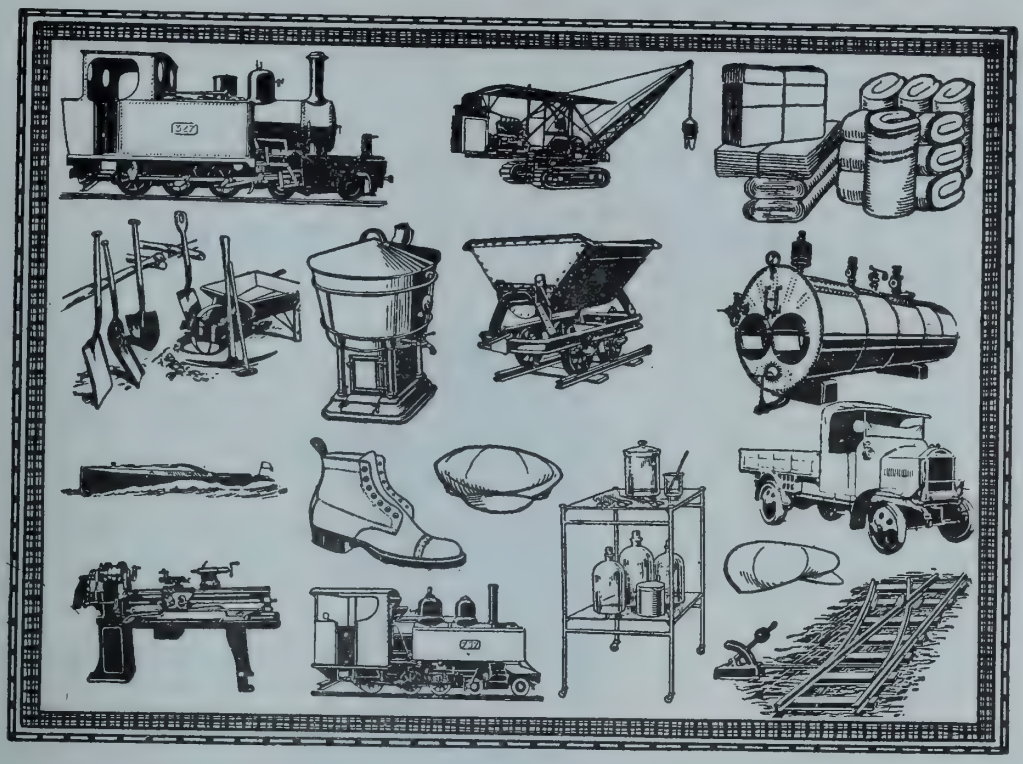

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60,000 Daisy Boilers —and Your Trade

The Modern Home

The fully established reputation of Daisy Hot Water Boilers makes them easy to sell. They meet the requirements of the modern home in the highest degree and give lasting and faithful service—which means absolute satisfaction. The popularity of the Daisy Hot Water Boiler is proved by the 60,000 now in use. Every Daisy you instal increases that popularity, makes sales easier, and paves the way to bigger and better Boiler business. Drop us a line to-day.

Warden King, Limited
MONTREAL

Branch Office: **136 Simcoe Street, Toronto**

Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO, SEPTEMBER 15, 1920 No. 18

Use Windows and Fairs for Exhibiting Water Systems in Action; Some Plans Successfully Used

Greenhouse Owners, Dairymen, Poultrymen, Factories, all Prospects in Addition to Rural Houseowners—How One Dealer Sold Nine Systems from a Drawing Contest—Sell the Idea and Avoid Discussion on Mechanical Features—Do Not Recommend Check Valve Between Pump and Well.

SEVERAL points of value to plumbers engaged in the sale of water supply systems were brought out by Mr. Field, of the Burnett-Larch Company, Dayton, Ohio, in an address to a gathering of master plumbers and others interested in the subject in Toronto. The gathering was arranged under the auspices of the Burnett-Larch Company by Mr. Robb, of the Empire Manufacturing Company, and follows out a plan adopted by the company in the United States for better acquainting the trade with the merits of water systems and emphasizing selling points. The lecture given by Mr. Field with the aid of lantern slides was very instructive, and many of those attending were given a new perspective on the possibilities for the sale of water systems.

Mr. Field emphasized the point that in selling water systems plumbers should keep in mind the fact that they are rendering humanity a distinct and valuable service and are adding greatly to the comfort of the farmer and his family by installing such equipment. Slides showing antiquated equipment for pumping water on the farm such as broken windmills with pump jacks attached, etc., were thrown on the canvas and compared with modern equipment.

Many Sources of Business

Other sources of business for water systems were shown to include greenhouse owners, dairymen, poultrymen, etc., all of whom required water under pressure. It was pointed out that the experience of dairymen had been that in cold weather the stock were kept in much better condition by being supplied in the stable with running water rather than being taken out in the cold to drink water from a trough which was half frozen over with ice.

Another interesting source of business for water supply systems was factories which spent large sums annually on icing water during the hot summer months. Mr. Field stated that one such factory in the United States installed a pumping machine and drew water from a deep well for the use of its office and factory staff. The water was always cool and the saving in ice for one or two seasons paid for the expense of the pumping outfit.

Window Displays With Action

The need for attractive window displays in selling water supply outfits was pointed out and illustrated in the slides. Mr. Field stated that too long had the plumber been inclined to neglect his windows or else to put in a number of pieces of standard plumbing equipment which every person passing the store knew any plumber could carry. Mr. Field pointed out that in the United States many plumbers had come to realize the great importance of their windows and had been cashing in on their displays.

In making suggestions for displays Mr. Field thought that action should be shown wherever possible as it was always a big factor in drawing a crowd to view the display. It was suggested that a model barn and farmhouse and grounds be laid out. One dealer borrowed such equipment from another dealer nearby who had been using them for displays of paint. Then a miniature fountain with running water and other faucets can be located around the grounds showing water running into troughs for the stock, into the sink, etc. Another suggested display was to show a kitchen with a washing machine connected with the motor used for the water pumping. Such a display would indicate the double value of having this source of energy near at hand. Or a sample bathroom can be arranged showing the comparison between the new and the old way, comparing the hand pump with the running water from the faucets.

A Drawing Contest

Mr. Field stated that a drawing contest had been arranged by one live dealer who was very active in the sale of water system. The plan followed was to have every person who drew a number register their name and address. The important point of the contest was that only persons who were able to show that they needed a water supply system were allowed to draw. As a result of the contest the dealer secured the names of two hundred local people who openly admitted that they needed such a system. It is significant of the success of the plan that this dealer sold nine water systems to those who had registered within the thirty days following the contest.

Use Local Fairs

Taking full advantage of the publicity offered by local exhibitions was another point emphasized. Mr. Field stated that many dealers had successfully used this form of demonstrating water systems, for people who visit the fairs are in a receptive mood and willing to spend the time to look into the full possibilities of such systems. One dealer placed a drinking fountain in front of his exhibit and supplied it with running water, and as there were no facilities for running water in the district everyone was interested in finding out where the supply came from. Needless to say it proved a splendid exhibit.

In selling water systems it was pointed out that the most effective way is to sell the idea—for what it does—and

FINED $25.00 FOR CONNECTING SEWER WITH REFRIGERATOR

Winnipeg.—In a butcher shop an inspection showed that the waste pipe from the ice box was carried down into a dark and dirty alley. The screw cap had been removed from the sewer clean-out and a galvanized iron refrigerator waste pipe stuck into the opening. The effect of this unique arrangement was to permit a continuous current of foul air from the sewer to ascend to the ice box where meat for sale was kept. In addition to this the plumbing was out of order and the premises were filthy. A fine of $25.00 and costs was inflicted.

avoid as far as possible sales talk along mechanical lines. The suggestion was made that dealers secure a list of electric power users on the outlying districts where there is no running water supply and then concentrate on these as prospects by means of letters and other advertising matter, always keeping in mind the fact that in so doing you are rendering a real service to the home besides developing business for yourself.

Relation Between Horizontal and Vertical Lift

In the discussion which followed the address, one dealer asked as to the relation between the vertical lift of water compared with the distance horizontally which it must be pumped. Mr. Field advised that one foot of vertical lift be deducted for each fifty feet the water supply is located from the point at which it is to be used.

The ordinary pump would supply water at a vertical height of 33 feet at sea level and with a perfect vacuum, said Mr. Field, who added that not more than 18 to 20 feet was ever recommended unless a deep well pump was used and placed right over the well. It was pointed out that some allowance had, of course, to be made where water was being pumped against pressure as compared with pumping into an open tank. Some allowance could be made in the case of the latter. The question of placing a check valve between the well and the pump was discussed, Mr. Field stating that his company did not recommend the use of such a valve.

Need More Sewers and Water Mains in Winnipeg

Increase in Number of Outside Privies in Use —Report of Assistant Chief Health Inspector— Many Plumbing Defects—Gas Fitters Should Be Licensed.

WINNIPEG.—The Annual Report of the City Health Department just issued points out the need for more sewers and water mains in this city.

As there were practically no sewers or water mains completed last year the report for the first time since 1905 shows a slight increase in the number of outside privies in use.

Since 1905 the reduction of outside closets has been as follows: June 30, 1905, box closets, 6,153; earth pits, 186; total, 6,339. December 31, 1919, earth pits, 6; brick pits, 438; total, 444.

There are now only four chemical closets in the city and no further permits are being issued for this kind of closet.

A. J. Douglas, Medical Health Officer, says that during the year it was his privilege to welcome back a number of members of the department who served their country overseas. Among those who returned were : Dr. J. H. Leeming; Inspector Pickering and Inspector Foggie.

Dr. U. J. Sharmon, who filled Dr. Leeming's place during the latter's absence, resigned early in the spring to accept a position in New York.

Report of Assistant Chief Health Inspector

The report of the Assistant Chief Health Inspector says that the total number of inspections was 37,714. The total defects discovered were 17,332. This includes 2,764 plumbing defects.

Other Plumbing Defects

Of the 2,764 plumbing defects discovered, 1,861 were due to defective or choked drains, sinks, baths, washbasins, W.C.'s or other fittings. Ninety-eight water closet apartments were found to be either without windows, or with defective lighting. At 318 premises the water service was reported to be either defective or turned off. Sixty-eight complaints were made of insufficient number of plumbing fixtures and only 43 persons were notified to instal plumbing in a building for the first time. Very few new sewers or water mains were constructed or this number would have been larger.

Only twenty-two such complaints were received and fortunately none of them very serious. Most of them related to defective gas stoves or stoves not properly connected to flues. It is highly important that all gas fitters be licensed, all gas fitting be done under permit, and inspection made after the work is done. Especially since housing accommodation became so scarce we find large numbers of gas stoves installed without any hoods or pipes and in many instances these stoves are installed in small rooms which are also occupied as bedrooms. Where, as is often the case, there are several of such gas stoves installed in one house, the air must become seriously vitiated, especially in winter when all doors and windows are kept closed as much as possible.

There were 356 notices regarding frozen plumbing and water pipes served, an increase of 78 over 1918.

Sixty-six permits for closets were issued and 93 contractors were served notices in this respect.

Not Responsible for Damages from Freezing Pipe

Citizen of Welland, Ont., Fails in Suit Against Commission—Judgment Says Commission Not Responsible for Damage Caused by Water Stoppage from Freezing.

WELLAND, Ont.—A water pipe from which a service led to the home of a citizen was frozen up last winter, and he was without service for twenty days. He sued the water commission for damages. Judge Livingstone has handed down judgment in the case in which he finds for the commission and orders the plaintiff to pay the costs.

The judgment says:

At the close of the trial I was under the impression that the rights of the parties would be governed by the law relating to contracts, but after careful consideration it seems plain to me that it is not so. I think it doubtful if the action is properly framed, the city of Welland not being a party. But in any case, my conclusion is that the plaintiff cannot succeed in this action. The city of Welland has established a water works system under the provisions of the Legislature now found in The Public Utilities Act, R.S.O., 1914, chap. 204, and this is managed by the defendants. This is a system established for the general public benefit, and any citizen is entitled within reasonable limits to make use of it. The plaintiff living alongside a water main would no doubt be entitled to demand service, and, as a citizen of Welland, if service were improperly refused, he could maintain an action against the city. But the relationship between the parties is not the ordinary one arising from contract. A contract comes about through negotiation, and the free consent of the parties to it. Here the plaintiff is supplied with water as a matter of right, he being a citizen, and as such entitled to demand service. That being so, the defendants are not liable for the stoppage complained of, which was caused by the freezing of the water main, a matter for which, in the circumstances of this case, the defendants are clearly not responsible. No doubt when it was discovered that the water main was frozen, it became the duty of the defendants to repair it. They did so. The plaintiff's rights may be tested, it seems to me, by considering what would happen if a main pipe became frozen, and many citizens were deprived of water. Would they all have a right to enter an action for damages? Or suppose an accident happened at the water-works station, and the whole body of citizens were deprived of water, would each citizen have a right of action? In that case in effect we should see the whole body of citizens suing themselves.

Inspectors Urge Adoption of New Regulations

Plumbing and Drainage Inspectors Ass'n. of Ontario Hold Second Meeting and Decide on Active Support of Proposed Plumbing Regulations—The Function of a Septic Tank Outlined by F. A. Dallyn—Favor Standard Plumbing Goods.

THE Association of Plumbers and Drainage Inspectors of Ontario held their adjourned meeting in Toronto last week. Important papers were read, discussed and voted upon and some very interesting addresses were given by F. A. Dallyn, provincial sanitary engineer; G. W. Broomfield, president of the association, and J. T. Pepper, Toronto inspector.

To Send Copy of Resolution to Ontario Cabinet

A motion was made that a copy of a resolution be sent to the Ontario Cabinet asking that the proposed provincial by-law governing plumbing and drainage in Ontario be put into effect.

The president on this occasion made the following remarks:

"It is our opinion that as the only body of disinterested plumbers in Canada our petition should carry some weight in putting into effect the pending legislation for a provincial code among the plumbers of Ontario."

Mr. Dallyn's Address

F. A. Dallyn, provincial sanitary engineer, delivered a very interesting address on the functions of a septic tank. Mr. Dallyn is a reliable authority on such subjects and illustrated his lecture with facts of interest to sanitary engineers from all over the world.

"Septic tanks have only one function," said Mr. Dallyn, "that of liquifying solid particles introduced in them."

His address was received with much interest and many questions were brought up and discussed.

"Sewage odor has nothing to do with contracting disease," said Mr. Dallyn in answer to a question from one delegate. "In order to contract disease you have to come in direct contact with the sewage."

"Many epidemics are due to inadequate drains, improper sewage disposal devices, etc., in fact the disastrous plagues that swept through Europe in the middle ages were practically due to this cause."

He also said that flving inhalation would not lower the vitality but that it was possible to contract intestinal troubles from inhaling filth.

"The troops in Salonica and other warm climates, after a long march, would invariably be affected with intestinal trouble," he said, "due to the inhalation of dust, filth, and other injurious particles that are allowed to accumulate on the roads in these southern countries."

Inspector Should Be Diplomat

President G. W. Broomfield is of the opinion that an inspector should be a diplomat as well as a good judge of plumbing. He furthermore stated that the association was aware of the advantages of standard lines in the plumbing trade.

J. T. Pepper, Toronto inspector, said that in his opinion iron pipe had an advantage over tile pipe because the house owner could not tamper with the former. He is also of the opipnion that the smoke test should be applied in every case and that rainwater drains should not be installed at the corner of buildings.

It is the purpose of the association to improve the conditions of the plumber and drainage inspectors as much as possible; to bring out facts; settle disputes, and have one uniform inspection throughout Ontario.

It is the intention of the association to have prominent sanitarians address the meeting on future occasions.

The next meeting of the association is to be held in Brantford in February, the date to be later determined by the president.

Circulars explaining the objects of the associations have been sent out to all the Ontario municipalities inviting them to join. Several letters were read from inspectors representing all parts of Ontario and it was apparent that the association is meeting with much favor throughout the province.

It was decided that any officer oppointed by the Government to inspect plumbing or drains, etc., shall be eligible for the association.

On Thursday afternoon the business session was held in the City Hall, members later being driven about Toronto in automobiles, followed by a banquet given by the Toronto members. A theatre party was held in the evening.

On Friday an opportunity was given visiting delegates to see how Toronto inspectors do their work.

The association now has twenty-six members and a registration fee of three dollars is charged.

The officers of the association are as follows: President, G. W. Broomfield. Brantford; secretary, W. H. Meadows, Toronto; treasurer, S. Doughty, Ottawa.

The executive committee is composed of the above three officers and five other members as follows:

Ask Government for Natural Gas

Chatham Steam Heating Company Presenting Ultimatum—Has Rendered Only One Dividend Since Established — Cannot Operate Without Gas Supply

CHATHAM, Ont., Sept. 2.—The directors of the Chatham Steam Heating Co., who own the central plant, which supplies the majority of the King Street business houses of Chatham with heat, held a meeting to consider the question of whether or not they would operate the plant next year. A special committee of the Chamber of Commerce was also in consultation with the directors. No decision could be reached. The company use the exhaust steam from the C. W. and L. E. power house. The directors of the railway claim they will not be able to operate all winter unless they receive a supply of natural gas. Last winter the gas commissioner cut off the company's gas supply, and if the same thing is done this winter they will close down their plant. The result of the meeting was that a committee from the city council and the chamber of commerce will be asked to wait on the Ontario Minister of Mines to see if the C. W. and L. E. can be supplied with a natural gas service this winter. If this is done the steam-heating company will operate as usual, only with an increased rate for heat. It was claimed at the meeting that the heating company has only rendered one dividend since it was established, and that one only four per cent. The directors present were: Messrs. A. M. Fell, A. Park and J. G. Kerr.

British Empire Steel Corporation

It is announced by the British Empire Steel Corporation that it has decided upon a development programme which will call for an expenditure of approximately $20,000,000 in Nova Scotia in developing its steel, coal and shipbuilding properties. Of this sum, the Dominion Coal Company will have $6,250,000 for new ocean terminal piers at Louisberg; the Dominion Iron & Steel Company $6,250,000. the Nova Scotia Steel Company, Sydney Mines, $2,080,000; Cape Breton, $14,580,000; Nova Scotia Steel Company, New Glasgow, $4,160,000, and the Halifax Shipyards, $1,250,000.

Thomas Partridge, of London, Ont., has plumbing and heating contract for new $10,000 office building for the London and Petrolea Barrel Co.

Some Useful Information on Gauge Glasses

The Various Troubles to Which They Are Subject Are Discussed Also Means of Preventing Some of Them—The Right and Wrong Way of Fitting a Glass is Explained

By H. E. WAVERLEY

THE glass water gauge, which is such a familiar object and may be seen on almost every boiler front, may be considered a time and labor-saving device, and to a certain extent a safety appliance also. The glass gauge, like other safety appliances, must be kept clean and in good condition at all times in order to ensure reliable indications of the water level in the boiler. It is a simple device to keep in order, and not a difficult one to repair when it gets out of order. Where raw feed-water is employed, as is generally the case where boilers are not used for power purposes in non-condensing plants, the gauge glass should be kept clean by blowing out at regular intervals. The interval between cleaning-out times depends upon the quantity and the quality of the water used. Muddy water deposits a sediment, principally mud, while clear water deposits carbonate and sulphate of lime and magnesia which form scale.

When closing the valve after blowing out the column and glass, a certain quantity of water carrying deposits is retained in the column and glass, and in a few minutes these settle along the bottom of the lower column pipe and in the bottom connection leading to the glass. If the blow-off valve be now opened a very little and for about 5 seconds these accumulations may be removed before they have had an opportunity of becoming attached to the surfaces, and without renewing the entire contents of the column and glass. By a careful manipulation of the blow-off valve under the water column, and of the drip-cock under the glass, these parts may not only be cleaned of sediment but they can to a considerable extent be kept free of such troublesome accumulations. Where the feed-water is very bad and the amount of sediment is found to be large, it always pays to be very careful when blowing out the column and glass, and to remove as much of the deposits as possible, not because of the trouble that would otherwise be experienced in removing hard scale, but to ensure accurate indications of the water level at all times and upon which the safety of the plant very largely depends. The glass water gauge in many plants is relied upon almost entirely from one week's end to the other, the gauge cocks being used in emergencies only. It is nothing more or less than criminal negligence to place so much confidence in a glass water gauge unless great care is taken to ensure its proper condition at all times, and that can only be done by frequent and thorough cleaning.

In certain works on steam engines and boilers directions are given for the proper care of the water column and gauge glass. The directions are generally to the effect that the glass should be blown out from four to six times each day, and that the gauge cocks should be tried at least once every half-hour. These directions are decidedly on the safe side in one respect, and that is that a gauge-cock cannot possibly clog or become scaled over during a single half-hour, and with the worst possible feed-water and condition of boiler. On the other hand, experience with different firemen and water tenders seems to indicate that the directions if followed to the letter eventually lead to dangerous conditions.

It must be understood that there are exceptionally careful men to be found in boiler-rooms, and there are water columns fitted with exceptionally good gauge-cocks and water gauge connections. The directions referred to are all that can be desired when these exceptional conditions exist, but under ordinary conditions the very frequent use of these important devices produces needless wear and a large amount of avoidable labor and annoyance. Gauge-cocks cannot be expected to remain steam and water-tight for many weeks when used twice an hour day after day, and when they begin to leak at very short intervals and spatter mud and water over a nicely kept boiler front the temptation to plug them, or to repair them and then neglect to use them often enough to ensure safety, is indeed very great, and too often proves irresistible. The moderate use of gauge-cocks is all that is necessary to ensure safety, and it further ensures the continued use of the gauge-cocks without leakage or other inconvenience.

Gauge glasses as a general thing break oftener when frequently blown out. There is a practical limit to the frequency with which the glasses should be blown out the same as with the opening of gauge cocks, and the limit depends upon the frequency with which the boiler is cleaned, the kind of water used, and the kind of glass gauge fittings employed. With fittings having liberally proportioned openings leading to the glass, say, not less than ¼ inch in diameter, and when the boiler is cleaned every two weeks or after 135 hours' run, four times a day is often enough to blow out the glass, and three times a day is often enough for the water column. A day is assumed to be the length of time necessary to prepare for a day's run of ten hours, and to prepare the machinery for the night after shutting down.

Glasses last anywhere from two minutes to two years on power boilers, and frequently as long as three years on boilers used for low pressure heating. Probably three or four months would be a fair average for power boilers carrying pressure of 100 pound and upward. Glasses used on power boilers are generally blown out much oftener than the glasses on heating boilers, especially in non-condensing plants. The effect upon the glass of frequent blowing, and consequently of frequent heating and cooling, is similar to what is known as the fatigue of metals. After expanding and contracting rapidly a certain number of times the glass will fail. If such a glass lasts 24 hours it will generally last a month or more. When the packing, which is soft and pliable at first, becomes dried out and hard as it will in the course of a month or two, the glass is more apt to break because it is not as free to expand as it was when the packing was first put in, and this, together with the alternate heating and cooling and the gradual wearing away due to blowing out the glass, tends to greatly shorten the life of gauge glasses when used on boilers supplying high-pressure steam.

When condensed steam is fed into the boiler, or gravitates into it from the heating system, very little deposit and accumulation of scale occurs, and the water is generally clear and of course does not tend to obstruct small passages quickly, so that the gauge cocks are seldom used, and the gauge glass is blown out at rather long intervals. Glasses last much longer under the latter conditions.

The gauge cocks should be used to check the indications of the glass each time the latter is blown out. It is important to have the fittings exactly in line with each other, and to have them large enough so as not to cause the glass to bind or to be cramped in the least. When the fittings are not in line the glass is apt to be cramped either when putting it into the sockets in the fittings or when tightening the packing nuts. When tightening the nuts around a glass when in the position indicated in Fig. 1, the tendency is to straighten the glass—that is, to bring the glass into a position parallel to the socket at the end being tightened, and this tends to bend the glass, as shown in Fig. 2. It is, of course, impossible to bend the glass consequently the glass either snaps when the nut is turned or when the glass expands when it becomes heated. Failure to notice these little points is responsible in many cases for continued annoyance from breaking gauge glasses.

Sometimes it is necessary to ream out the fitting, say 1-32-in. or 1-16-in. larger so as to give the glass sufficient free-

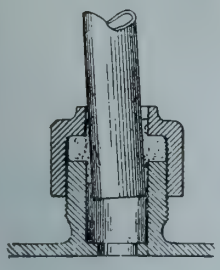


FIG. 1.

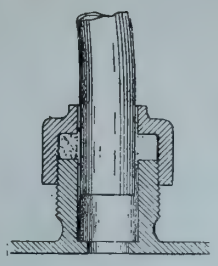


FIG. 2.

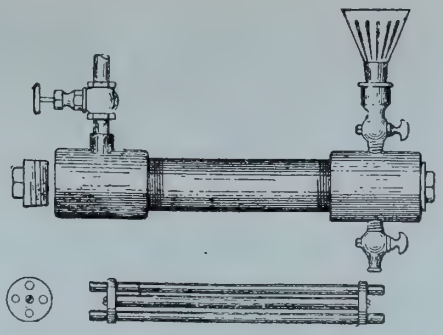


FIG. 3.

dom. Wrenches should almost never be used for tightening the packing nuts around the gauge glass. When a glass is packed with the proper kind of packing and the nuts have been screwed up just tight enough to prevent leakage when both the glass and the packing have been warmed, the glass may readily be turned around in the fittings with merely the thumb and forefinger.

After putting in a new glass turn on a very little steam, leaving the drip at the bottom of the glass open so that the steam will gradually fill the glass and escape through the drip cock. The glass is thus warmed thoroughly before the water is let into it and before it is subjected to pressure. When the glass has become thoroughly hot, open the steam valve wider, then open the water valve a like amount, and continuing to open both valves alike until fully open, then slowly close the drip at the bottom. This method not only allows the fittings to be thoroughly blown out, but enables the operator to increase the pressure on a new glass and new packing more gradually. The drip-cock should now be opened and closed suddenly. If the fittings are filled with sediment to such an extent that sudden opening and closing of the drip-cock is necessary to clear it, it is evident that the drip is not opened often enough, or that the boiler is extremely foul.

When the drip has been closed for some time the water in the glass will become comparatively cool which is due to the absence of circulation, while the upper part of the glass will become comparatively hot. As this change of temperature in the low end of the glass takes place very slowly, no trouble is experienced, but when the drip is opened suddenly and the steam is thus brought in contact with the cooler end of the glass the latter very frequently breaks, and when that is the cause of breakage the glass will nearly always fail at some point below the middle, and generally about one-third the length of the glass from the bottom.

It frequently happens that an entire package of gauge glasses will prove to be too hard and brittle, and that the entire number will break within a few minutes after putting them in. It is due to experiences of this kind that many engineers have been led to anneal all the glasses before using them. This is generally accomplished by means of a water and steam bath, the water and the glasses being heated by steam. Engineers generally rig up some apparatus with what old material they have on hand that will accomplish the purpose. A simple device that has given satisfaction for this purpose is illustrated in Fig. 3.

It consists of a short piece of 2-in. or 2½-in. pipe about 4-in. longer than the glasses. On one end is screwed a coupling with the outer end plugged, and a drip-cock screwed into the upper and lower sides. On the other end is a reducing tee, which is plugged at the outer end, and a ½-in. or ¾-in. pipe screwed into the smaller opening at the side. A valve is placed in the smaller pipe close to the tee. The vertical pipe is connected to the boiler or to one of the steam pipes. A rack made of wood is provided having suitable holes in both heads for the gauge glasses; the rack serving to keep the glasses away from the pipes.

The plug is removed, as shown, and the rack containing the glasses slipped into the pipe. The plug is then screwed in and the pipe filled with water of the same temperature as the air in the room. Both cocks being closed, the valve is opened and the condensed steam in the vertical pipe, which is practically cold, is admitted into the remaining space in the 2-in. pipe and connections. The lower drip-cock is then opened a very little thus permitting the water and condensed steam to gradually work out, which admits steam and heats the pipe and the glasses very gradually. When steam issues from the lower cock the valve is opened wide, the cock serving to keep the pipe drained. The glasses are then kept under boiler pressure, and consequently at boiler temperature for from three to four hours. At the end of that time the lower cock is closed, when the pipe at once begins to fill with hot water, the water cooling down very gradually owing to lack of circulation as the vertical pipe becomes filled. When the pipe has cooled to its original temperature the valve is closed and the two cocks opened thus draining the pipe. The plug is then removed and the glasses taken out, dried, and put away again in the box.

Glasses treated in this way have given the best of satisfaction on high-pressure boilers where the change of temperature when blowing out is very great, and where glasses are subjected to draughts of cold air, and also for portable and hoisting engine boilers, which are subjected to rather severe usage, as far as changes of temperature are concerned. Any other device which will permit the glasses to be heated very gradually and again cooled very gradually will serve the purpose fully as well as the one just described.

The bursting of gauge glasses is attended with not a little personal danger and discomfort, and it is important that all reasonable precautions against such breakage be taken by the person in charge. When a gauge glass breaks when under pressure always close the lower valve first. It is cheaper in the long run to cut glasses with a gauge-glass cutter than to attempt to cut or break them off with a broken file, or by similar means, because a slight nick in the glass at the wrong place may mean the early destruction of the glass when subjected to pressure and varying temperature.

There are other practical means for preventing the breakage of gauge glasses. Some engineers fit a thin brass or copper thimble into the upper end of the tube, as shown in Fig. 4, which prevents scale and water from coming in contact with the glass when blowing out the latter, and hence it reduces the eroded and pitted appearance commonly seen at the upper end of unprotected glasses. Tubes made of aluminum may be obtained of dealers in engineers' supplies which accomplish the same result.

These tubes and thimbles, it will be seen, protect the inner surfaces of the glass only, and as the glass is liable to be crowded to one side or the other in the packing nut as well as in the fitting itself, it is a good plan to also protect the glass on the outside. A simple means of protecting the glass on the outside is also obtained from dealers in gauge glasses.

It consists of a rubber sleeve adapted to slide over the end of the glass, as shown in Fig. 5. The glass cannot come in contact with the socket in the fitting, neither can the packing nut touch the glass when the packing is screwed up. The combination of the thimble and the latter device prevents the rapid wear of the glass at the top, and also retains the glass clear of all metallic contacts which has been found to be very desirable where glasses are subjected to high pressure and temperature and sudden changes in the latter.

When the rubber protector is employed separate packing rings are not needed, because the packing forms a part of the sleeve as shown. Annealed gauge glasses protected inside and out by this or similar means will last as long under any circumstances as it is possible to make them by any means thus far made known.

Many engineers suffer unceasing annoyance due to breaking gauge glasses because they do not pack them with the proper material. Candle wicking and asbestos wicking should be used only in case of emergency. The latter materials are too porous and require too much

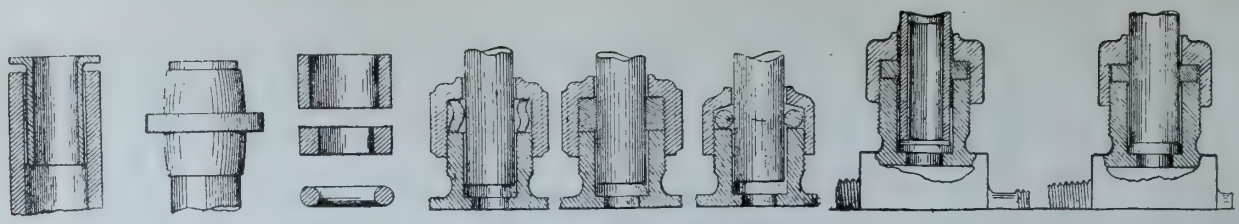


FIG. 4. FIG. 5. FIG. 6. FIG. 7. FIG. 8 FIG. 9. FIG. 10. FIG. 11.

pressure in order to make a tight joint to be suitable for packing a glass tube of any kind. The wicking soon becomes charred and hard and begins to leak, and it is evident that after it becomes hard it is useless to attempt to tighten the packing nuts. A second tightening merely serves to compress the glass so tightly as to prevent the necessary expansion, and the almost invariable result is breakage.

When a gauge glass is packed with wicking, either candle wicking or asbestos, and begins to leak at the end of, say, a month, the best thing to do is to repack the glass. Tightening the nuts on hard, dry packing, especially on an object so delicate as a gauge glass, avails nothing in the long run; but, on the other hand, it does add immensely to the number of glasses broken in a given time. Soft-rubber rings of the proper size are by far the best, and consequently these rings furnish the cheapest means of packing gauge glasses. The first cost of rubber is merely a trifle greater than that of wicking, while the life of the packing is more than doubled, and the number of glasses broken is greatly reduced.

Rubber rings are made in three forms or shapes when referring to cross-section —viz., the thimble, the square ring, and the round ring. These are shown in Fig. 6. Which of these three shapes will be found the more serviceable will depend upon how they fit the packing nut. Gauge-glass fittings are made of a variety of designs, some having a wide but shallow space to receive the packing, while others have a narrow and deep chamber between the sides of the nut and the glass. It is evident that the same form of packing cannot well be used equally well with all forms of packing nut. That is getting details down rather fine, but it is well worth considering when we remember that the durability of the glass and the safety of one's eyes depend largely upon the manner in which this work is done.

The packing ring should be of such size and shape that one ring only at each end of the glass will be required. A good job of packing gauge glasses can seldom be done when two or more rings are employed. When a rubber thimble is used on a packing nut adapted to the square ring, the result is about as shown in Fig. 7. This may be exaggerated a little, but it serves to illustrate the principle. The rubber thimble is particularly well adapted to the style of nut illustrated in Fig. 8, because the space between the nut and the glass is of the same shape, and is nearly the same size as the ring. The ring in this case is merely compressed lengthwise, and this becomes wider without any tendency to buckle or double up.

If fittings are used having a wider space for the packing, either the square or round rings give better satisfaction. The round ring is particularly well adapted to fittings having bevelled edges and nuts as shown in Fig. 9. The inclined surfaces are supposed to assist in crowding the packing against the glass, and perhaps they do, but as a general thing the bevel or angle is so slight that it is doubtful whether it is of much assistance in making a tight joint. When the edges of the fitting and nut are square, the square packing ring is best adapted, as shown in Fig. 10.

When two rings are employed the result is very apt to be simiar to that shown in Fig. 7, on account of the yielding nature of the rings, and this is especially so when both rings do not fit the nut perfectly, one ring tending to crowd the other away from or against the glass, thus rendering one of the rings practically useless, and the other one less efficient. A glass packed with a protector ring, and also protected on the inside is shown in Fig. 11. It will be seen that this is an ideal arrangement when the water is muddy and the glass and water column have to be blown out frequently.

There may be found on the market at a reasonable price rubber packings adapted to every construction for gauge glass fitting regularly made; also highly annealed glasses under various trade names, and after considering the subject as thoroughly as its importance demands it will readily be seen that in order to secure a tight joint with the least possible pressure, thus avoiding any tendency to break or to cramp the glass due to the packing, it is necessary to obtain a form of packing that will fit snugly in the space in the nut.

To get the best result from gauge glasses in any service first procure a good glass, then get suitable packing and keep it in a cool, dry place so that it will not harden. See that the fittings are in line, then pack the glass and screw up the nut with the fingers only. If the glasses break frequently, try some means for protecting them inside and out, and also anneal the glasses, which may be accomplished in the manner previously explained. A little more careful attention to the seemingly insignificant detail in a steam plant will be the means of saving a great deal of needless annoyance and not a little danger of personal injury.—"Southern Engineer."

Hon. C. C. Ballantyne Speaks of Big Exports

Federal Minister Sees Big Growth in Store—All Lines Steamers Already Receive Capacity Cargoes—Convinced that Bigger Business Obtainable When Shipping Available

MONTREAL. — "I was particularly impressed with a large delegation of lumber men who waited on me while I was at the coast, who convinced me, by their statements, that Canada was losing a large amount of export lumber business owing to the lack of ships and facilities. The first of these handicaps is now being overcome by the Government providing ships, and the question of a large lumber-assembling wharf will have the immediate attention of the Government. I expect all the Pacific coast ports to show development, particularly the Port of Vancouver. It will be, in my opinion, in the very near future, one of the most important national ports."

This sums up the enthusiastic manner in which Hon. C. C. Ballantyne, Canada's Minister of Marine, referred to the outlook for export as viewed by him during a recent trip to British Columbia. Continuing, the minister said:

"I am of the opinion that export trade from British Columbia is only in its infancy. In addition to the splendid C.P.R. fleet, the Dollard, Blue Funnel and other lines, the Government are at present running ships from Vancouver to Australia and New Zealand and also to the United Kingdom. These ships have so far had no difficulty in obtaining large cargoes both ways. The Canadian Government Merchant Marine, which is the operating company, will put on a service to India on November 1. They have under consideration also running ships from B. C. points to West Africa, South America, and the West Indies. The Government will have, when their ships are completed, sixteen ships in commission, of 120,000 net tonnage tons. All these ships will be operated from B. C. ports. Some are oil-burning boats and some are equipped with refrigeration plants."

In referring to conditions throughout the Canadian West, the Hon. Mr. Ballantyne said that business men had reported conditions active, and general optimism was expressed.

About That Cold Proof House

Saskatoon Boasts a House Embodying New Features of Construction to Maintain an Even Temperature Summer and Winter—Plumbers Asked for Details at Recent Convention.

At the last convention of the Canadian Society of D. S. and H. E. mention was made of the reported "cold-proof" house constructed in Saskatoon. Much interest has been taken in the development by plumbers throughout Canada and the facts are therefore presented herewith as outlined in "Concrete":

It is stated that so much care has been taken by the builder, H. Gauvin, to insulate the walls, that he has been able to use electric heating without undue cost. It is further stated that the cost of the "cold-proof" insulation was not 10 per cent. more than the cost of the ordinary tight construction.

The house itself is built of pebble-dash stucco for the walls and tar and gravel for the roof. There are nine rooms, with total contents of 20,000 cu. ft. There are 43 windows, but only two outside entrances. A concrete basement extends under the entire house, and includes a concrete tank for soft water.

The outside walls are built on 8-in. studs. Centered on the outer edge of each stud is a 5-16 in. steel rod, to which metal lath is attached, thus keeping the metal lath away from actual contact with the edge of the stud. The outer coat of cement plaster and stucco was applied to the metal lath to a thickness of ¾ in. When this had hardened, back-plaster was applied between the edge of the stud and the metal lath, in the space provided by the vertical rods. The outer section of the wall then consists of reinforced concrete slab 1½ in. thick, attached to the studs.

When the back-plaster had hardened and dried, the entire back-plaster and faces of the studs were given a coat of hot pitch, each pair of studs and wall space between forming three sides of an airtight vertical pocket.

The inner section of the wall was built up as follows: Two layers of asphalt paper tacked to the inner edges of the studs. On top of the paper, ordinary wooden lath and plaster finish.

The airtight spaces thus left between the studs were then filled with insulating material consisting of granulated cork mixed with 10 per cent. of dry planer shavings. . . The idea was not to pack this material into a solid mass, but to give it sufficient density to prevent the circulation of air through the mass, and at the same time leave a fairly uniform distribution of minute air pockets.

Preventing Cold Air From Entering at Lower Floor Line

The greatest care was taken to prevent entrance of cold air at the lower floor line and to prevent the escape of warm air through cracks or other apertures under the eaves. In ordinary construction it is common to bring the floor sleepers out flush with the outside surface of the concrete foundation. Slight shrinkage of the wood leaves a crack on each side of the sleeper, through which cold air may enter. In this instance the sleepers were not brought out to the surface, so that the outer face of the foundation is smooth concrete. An additional precaution was taken by painting the ends of the sleepers with hot pitch to prevent absorption of water from the concrete and consequent shrinkage. The stucco surface was carefully brought to an air-tight joint with the corner edge of the foundation.

The roof is flat, pitching slightly toward a central rain-pipe, which leads into a basement water tank. The roof rafters are 15 in. in depth. After the ceiling had been nailed up the spaces between the rafters were filled with the cork and shavings insulating mixture to a depth of 15 in., the rough roofing was laid and finished off with an ordinary tar and gravel composition. The roof framing was the simplest and most inexpensive that could be devised to meet the conditions.

All Doors and Windows Weather-Stript.

It is obvious that if the greatest economy in heating during severe weather is to be secured, no cold air must be permitted to enter the house, except that actually required for ventilation. To secure this economy all doors and windows are weatherstript with metal. There are only two entrances, one front and one in the rear. Both are double entrances, that is, a small entry-way or vestibule is provided, and one door is closed before the other is opened, thus preventing a rush of cold air into the house.

The window sashes were made as nearly air-tight as possible. The window casings were made of material and were rabbeted at the joints, each piece being primed separately to avoid shrinkage. The open spaces between the walls and frames were packed with mineral wool, and every crack was made air-tight. When storm windows were fitted they were pushed snugly against felt strips. The result is that although there are 43 windows in the house it is as snug as an underground cave, and the wind does not "drive the heat out" of the northeast bedroom. We read further:

"The first floor is filled with insulating material between the basement ceiling and the rough flooring and the second floor is also insulated for 4 feet around the outer wall.

"Tests in heat transmission through walls show that ordinary "double frame" wall, consisting of 8 in. studs, covered on the outside with double sheeting, and on the inside sheeted, papered, lathed and plastered, transmits 8.10 B.t.u. per square foot per twenty-four hours for each degree of difference in the temperature. In comparison with this, the type of wall construction used in Mr. Gauvin's house transmits only 1.9 B.t.u., less than one-fourth—under the same conditions.

The saving of fuel from this source alone is very considerable, but the construction was made much more effective by the elimination of convection currents, which in ordinary frame houses permit the heat to trickle through the roof.

Table of Temperatures Inside and Outside

Date	Outside Deg. F.	Inside Deg. F.	Date	Outside Deg. F	Inside Deg. F.
November			November		
1	18	64	23	10	67
2	16	67	24	6 below	66
3	16	66	25	4 below	67
4	14	65	26	6 below	67
5	6	66	27	0	68
6	0	67	28	4	68
7	10	65	29	12 below	67
8	5	66	30	16 below	67
9	10	68			
10	4	65	December		
11	4	66	1	10 below	66
12	8 below	65	2	6 below	67
13	0	65	3	4	68
14	20	67	4	14	67
15	30	68	5	10	68
16	42	68	6	20 below	67
17	30	68	7	20 below	67
18	32	66	8	22 below	66
19	38	68	9	24 below	67
20	30	67	10	22 below	66
21	34	68	11	24	66
22	36	66	12	6	67

Use of Electric Steam Radiators

The heating plant consists of nine electric steam radiators. These are ordinary steam radiators with an electric heating coil inserted in the lower manifold. It has been found that it is not necessary to keep all the radiators going in order to keep the house comfortably warm, even in extremely cold weather.

At 2¼ cents per kilowatt-hour, the bill for October was $8.32; for November, $25.7, and for the first twelve days of December, $19.18. These figures compare very favorably with the amount spent for coal in heating an ordinary house of equivalent size.

The radiators are turned off every

(Continued on next page.)

NEW YORK PLUMBERS ASK NINE DOLLARS A DAY WAGE

New York.—A forty-four-hour week, $9 a day minimum pay, ten days' holidays a year, and the curtailment of overtime to urgent necessity were demands made by plumbers here in an ultimatum to their bosses. The men say they will call a strike if the demands are not met. Double pay also is wanted for work on Sundays, holidays and after regular hours.

New Goods of Interest to the Plumbing Trade

ANTHES SINK TRAP

The Anthes Foundry, of Toronto and Winnipeg, have introduced a new non-syphoning adjustable sink trap. They state the trap is the only flushing device known that operates under natural law,

Adjustable Non-Syphon Sink Trap

no attention is required once it is installed, and it is endorsed by all sanitary engineers. It is tapped for 1½ in. iron pipe and supplied with N. P. slip joint nut and cast iron sink connection and is said to be a very convenient and economical trap for use on either new or old work. Circular and blue prints will be sent on request to the company.

COMBINED RANGE BOILER AND HOT WATER HEATER

Bastian-Morley, Ltd., of Hanson St., Toronto, are manufacturing a combination range boiler and gas hot water heater, termed the Royal, which has been tested and approved by "Good Housekeeping Institute."

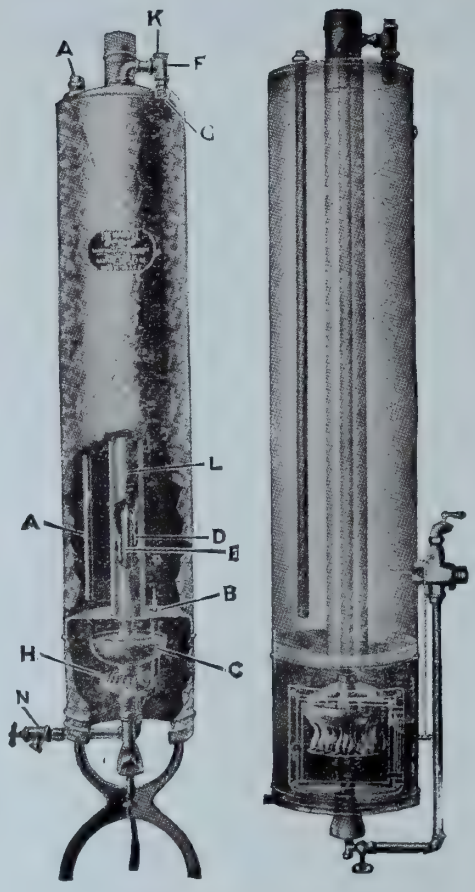
It is claimed that it will provide instantaneous hot water for bathroom, kitchen and laundry, at an approximate gas consumption of from 3,000 to 3,500 cubic feet per month without increasing the present motor or gas line service in the home.

It is said to heat the entire capacity of the tank in a surprisingly short time and to be silent, odorless and safe.

The company also make a non-automatic heater in the same general style of construction, but without the automatic feature known as the Marvel.

Simple, scientific principles, combined with rugged durable construction, give efficiency and lasting service.

Both heaters can be connected with stove or furnace, so eliminating the necessity of a separate range boiler. Absence of coil or copper makes the heater equally durable and efficient in natural or artificial gas.



Combination Hot Water Heater

Bastian - Morley Limited market through the regular trade channels only, so plumbers can secure their requirements from their jobbers.

MERCHANTS WILL PROSECUTE FRAUDULENT BANKRUPTS

Montreal. — The work of the Merchants' Association of Montreal was brought under review in a report submitted by E. E. Wallace, the president, at the annual meeting held here today. It was stated that only $800 is required to complete the fund of $10,000 organized by the association for the prosecution of those who fail fraudulently either in Montreal or in Quebec Province.

CANADIAN EXPORT TRADE

Canadian export figures for the first four months of the present fiscal year were: $56,445,119, against $90,328,285 for the corresponding period of last year. Imports in 1920 totalled $27,373,971, against $27,799,712. The trade balance in Canada's favor in 1920 was $29,071,-148, against $62,528,573 for the corresponding four months of 1919.

PT. COLBORNE DOMESTIC SEWAGE AND ROOF WATER SCHEME TO COST $685,000

Port Colborne.—R. O. Wynne-Roberts, C.E. for Port Colborne's waterworks and sewage disposal problems, recently made the necessary preliminary surveys and investigations with respect to the proposed sewerage system for the town of Port Colborne.

In the sewage disposal system two plans are given, one estimated to cost $685,000, which provides for the disposal of both sewage and roof water; the other to cost $658,000 and which provides for the disposal of sewage only.

The plans for an up-to-date waterworks system with intake off Sugar Loaf Point to supply the needs of 6,000 people call for an expenditure of about $275,000.

MALLEABLES TO BE SHORT FOR SIX MONTHS

Montreal.—There is a continued scarcity of malleables and there will be no improvement for six months, according to one of the largest manufacturers in America. Interviewed by Sanitary Engineer this informant stated that the situation was bad — worse indeed than it has been for some time. "I can see no improvement for six months in the matter of supply," he stated.

The principal reason for present shortage is a general heavy demand from the trade. Railways and railway equipment firms have made heavy inroads on the available supplies. The replacement of rolling stock has been a serious drain upon the supplies of malleables produced and manufacturers in the United States and Canada, this informant said, are quite unable to meet the trade demands now, and will be unable to do so for some time. There has been a general advance in these lines in the United States but none as yet in Canada. "As far as we are concerned, we believe that prices are as high as they should be on these products, and we have no intention of advancing ours," concluded this manufacturer.

ABOUT THAT COLD PROOF HOME

(Continued from page 21.)

night about 8.30. Even when the outside temperature reached 35 deg. Fahr. zero, as it did December 9, the inside temperature next morning had fallen only to 54 deg.

This type of construction is, of course, as well adapted to any other heating system as to this one, but it was thought that the convenience of electricity might be taken advantage of, since its cost was not likely to be unduly high. The electrical installation was made at a first cost of thirty-five per cent. of what a steam installation would have cost.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

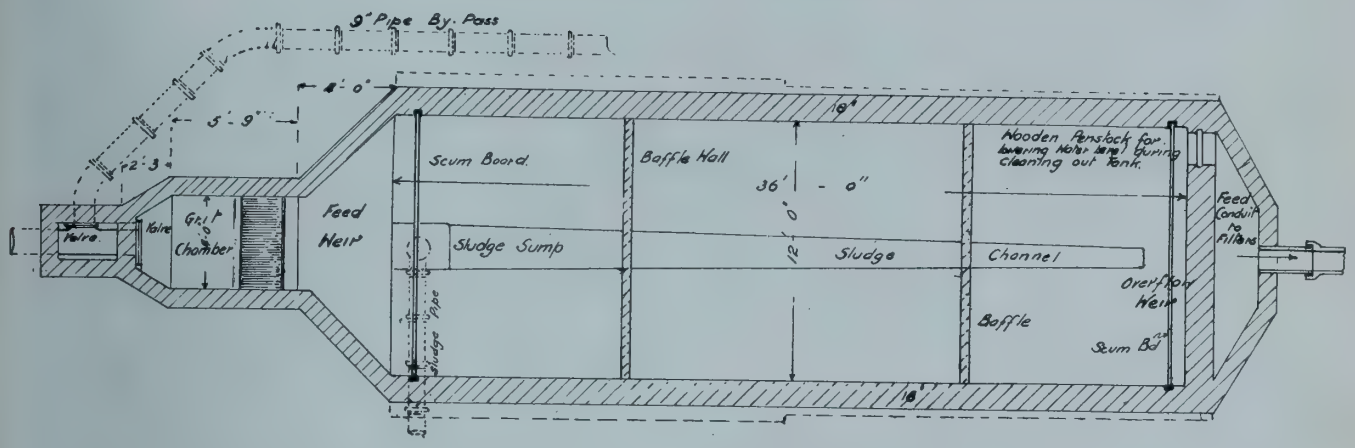


FIG. 22.

Article No. 16 of the Series

ILLUSTRATION NO. 22

(Continued from last issue.)

Larger Installations

In larger installations which take care of the sewage from prisons, hospitals, schools, colleges, asylums, villages and small towns, the design of the plant becomes more intricate and expensive than that required for the smaller country mansions.

The first procedure in purifying the sewage from such institutions is removing the heavy, insoluble mineral matter which finds entrance to the disposal work from the grit and sand washed into the sewer from yards and roadways. This is best accomplished by constructing a combined screening chamber, overflow weir and detritus tank, preceding the regular settling or septic tank.

The sewage first passes through a screen which consists of slightly tapered iron bars ½ inch to ¾ inch spaces laid to an angle of 45 deg. to the flow, having their ends bent over to facilitate the handraking process for cleansing the screens from time to time.

Rags, sticks, cork and other floating matter are retained by the screens and collected and buried as they accumulate.

There are several sewage screens on the market, which are power driven and require no manual labor but periodical inspection, such as rakes attached to endless chains, water wheel screens, rotary screens, etc., etc., but which are too expensive to install for small installations. These can be obtained in any good catalogue of sanitary engineering appliances.

EDITORIAL COMMENT

TO WHOM CREDIT IS DUE

NO ONE knows the tremendous strides which have been made in the sanitary plumbing and drainage systems better than those who have been engaged for a lifetime in the manufacture of the goods which have made the modern drainage systems what they are. No art or craft has made greater strides in perfecting its product than the art of plumbing and drainage. Credit for this should be given to four classes of people, namely:

1. The Architect, who, always desirous of giving his clients improved methods of construction, has constantly called for a higher type of design in plumbing and drainage systems.

2. The Master Plumber, who, ever ready and anxious to secure the health and comfort of his patrons, has, by his inventive genius and his enterprise as a merchant, aided greatly in the advancement of his art.

3. The Journeyman Plumber, with whom rests the correct installation and subsequent sanitary action of plumbing fixtures and drainage devices, and who, by conscientious labor, has made possible the introduction of new ideas.

4. The Plumbing and Drainage Inspection Bureaus of our progressive municipalities which, by setting high standards of sanitary work, have made it necessary for architects, master plumbers and journeymen plumbers to co-operate in raising the standard of plumbing and drainage systems.

Against all of these influences, however, there exists one individual who seems determined if not to block, at least to stultify this progress. He is known as the "handyman," who, without knowledge of the subject, without a license to do business and who, with a supreme indifference to the health and comfort of others, undertakes to repair his own plumbing and drainage system. Doing his own work, this so-called "handyman" not only creates dangerous and unhealthy conditions, but he also hinders the journeyman and the master plumber in their efforts to reap the reward of their years of scientific energy and labor.

CITY CONVENIENCES IN RURAL DISTRICTS EMPHASIZED AT CANADIAN NATIONAL EXHIBITION

A PARTICULARLY important feature of this year's Canadian National Exhibition, which closed last week with an attendance of over one million persons, was the exhibit of labor-saving machines and devices for the convenience of country homes. Introducing city conveniences to the rural district was emphasized in many different ways and it was evident that there is a big field for this business in Canada. The entries of exhibitors were considerably larger than in 1919 and probably equal to the total number shown in the two years previously. The absence of running water, modern lighting and common kitchen labor-saving contrivances has long given young people grounds for moving to a more up-to-date home in the city. Even the farmer not located on a power line can now, for a reasonable expenditure, instal every known convenience in his house or barn. The value of such an equipped residence cannot be over-estimated. It is claimed in the United States that eye trouble due to improper lighting is more prevalent in the rural districts than in the urban centres. Even in Canada, it has been said that there are more cases of consumption coming from the country districts than are sent to the hospitals from the cities. These are rather alarming statements, but, coming from reliable sources, they can hardly be disputed. The installation of modern conveniences and the proper treatment of food supplies for the farm home would go a long way towards the elimination of these allegations.

DID you ever stop to think how seriously indifference and neglect of the correspondence of your creditors, relating to overdue accounts, affects your credit standing? If you cannot remit when due, don't let the creditor guess the reason. He is likely to make an unpleasant guess. Give him the reason straight, and thus encourage that frank relationship between business men that is worth dollars to each. Promptness in correspondence is one of the best of credit and business builders.

FERTILE FIELD FOR THE RESOURCEFUL PLUMBER

A GATHERING of master plumbers and others in Toronto was recently given a demonstration of the plans which have greatly increased the sale of water supply systems in the United States, and it is evident that a little intelligent effort on the part of plumbers in Canada will help to develop a fertile field for trade in this country. A man who has had long experience in dealing with the plumbers in both countries points to the lack of attention on the part of those in Canada to factors which have great business producing possibilities. The plumbers' windows are one of these factors which have been sadly neglected. As he says they are generally filled with a few pieces of equipment which everyone knows are kept in stock by any plumber, and too often even these articles have an unkempt appearance. This is one of the first things to which many Canadian plumbers can give attention. It is a fact that many U.S. plumbers have developed large sales of such lines as water supply systems by demonstrating by means of windows and at local exhibitions water systems in action. People like to see such devices in working shape and will be attracted to a window showing running water from the faucets in a country home compared with the old system of using the hand pump.

The use of a water pumping system on the farm is of inestimable value during the cold winter months for feeding stock. Greenhouse owners, poultrymen, etc., are also splendid prospects. It is also shown that factories can utilize a pump to good effect by bringing water from a deep well rather than bearing the expense of icing water every summer. Many other valuable suggestions are outlined in the article as to how water supply systems should be handled and it will pay every plumber to give good consideration to this matter and to size up his own possibilities for such business.

RADIAL DEVELOPMENT WILL NOT DEPOPULATE RURAL DISTRICTS

MUCH editorial opinion has been expressed recently in connection with the encouraging of the Hydro radial scheme, that such development would depopulate the rural districts in favor of the larger centres. Premier Drury says there is a direct connection between the crowding of population from the rural districts to the large centres and Hydro power and radial development. The contrary view from that expressed seems to have more basis. The city to-day draws population from the rural districts because it offers more attractions to comfort and pleasure-loving people. Taking these attractions to the rural districts will encourage those now in those districts to remain where they are and will also be responsible for taking some city people out to the rural districts where they will be enabled to enjoy greater freedom, and where they will still be within easy reach of their place of employment. It is in the interests of the rural districts that electric lines should carry their people and their produce to town and bring back those things essential on the farm. This plan would be a mutually profitable arrangement. The rural district needs the city and vice versa, so that the encouragement of better and quicker communication between them will be in the interests of both.

BRITISH COLUMBIA HALF-HOLIDAY

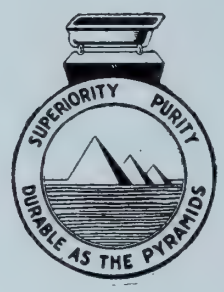
NOW that the summer season is over, it is interesting to note that the Province of British Columbia has enacted a law whereby all places of business, with the exception of confectionery, drug and fruit stores, restaurants and places of amusement, are compelled to close one-half day a week throughout the year from one o'clock noon until six o'clock the following morning. The day on which the half-holiday is to be observed is to be decided upon by a vote of the electors in each electoral district at the annual civic elections. The day can only be changed by vote at these elections and proper notice must be given by advertising. This half-holiday does not apply to weeks wherein another holiday occurs. The half-holiday generally observed is Wednesday, but there are a few towns where places of business close other days in the week, even on Saturday. The hour for closing in the evening is six o'clock with the exception of Saturday. There are some towns, Vancouver for instance, where stores close every evening at six, including Saturday.

EDITORIALS IN BRIEF FORM

IF INTIMATE contact between men in the same profession were made more intimate, it would go farther toward bringing about that era of brotherhood for which most of us crave. Distrust would give way to trust. Men would learn to know one another better, and knowing one another would make for a broader understanding of motives. Interpretation of the acts of others would be guided by sympathy and sentiment instead of, as at present, heartlessness and harshness.

Canada's Glorio

There's no time for pessimism. Canad
natural and cultivated resources. Men are



DON'T let the enemies of a prosperous Canada stampede you into thinking that the country is going on the rocks because in some cases the banks have thought wise to check credits in certain quarters to turn this cash in taking care of Canada's natural and cultivated resources which need immediate attention.

The very fact that the greatest grain crop Canada has known for years needs moving is evidence that Canada has no need to worry for her immediate future. Prosperity is assured beyond a shadow of doubt, and only a temporary shortage of some building materials can prevent an unprecedented building programme next year.

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

Building Future

illions are now in action developing her d; homes must be supplied for their families

IT is advisable for you to place your orders for *Port Hope Sanitary Plumbers' Enameled Ware* as early as possible to ensure against delays in delivery resulting from uncertain transportation facilities further handicapped by winter weather conditions.

Canada needs men with homes—homes equipped with modern sanitary plumbing. This is your work and ours. Let us get together.

The Port Hope Sanitary "For the Home" Catalog makes selling easy for you. It saves carrying an overstock, is complete in its information and always handy. Let us supply you with additional copies to leave with your customers.

fg. Company, Limited

Halifax Office:
URDY BUILDING, HOLLIS ST.

Head Office:
ROYAL BANK BUILDING, TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

St. Thomas.—G. W. Blanchard has sold his plumbing business to W. J. Milton.

NEW BUSINESS

Courtenay, B.C. — The Courtenay Plumbing Co. have commenced business here.

Montreal.—Chas. Page and Arthur Laforce were recently registered under the name of Page and Laforce, to conduct a plumbing business in the city of Montreal.

BY-LAW WAS CARRIED

Newmarket.—Voting on the by-law to devote $20,000 for additional equipment for the waterworks here resulted in a majority of 53 in favor last week. The total vote polled was 186.

CONTRACTOR AMENDS TENDER

Hamilton.—Contractor Armstrong was permitted to amend a tender for a sewer to meet the figure of the city engineer, which was lower. Mr. Armstrong's figure was $9,490, and the engineer's $8,750. The engineer said his department was very busy, and he preferred to be relieved of the work.

RESIGNATION OF WOODSTOCK OFFICIAL

Woodstock, Ont.—The resignation of Cyril Cole as assistant superintendent of the local hydro plant and water works has been accepted by the Heat, Light and Water Committee. Mr. Cole has accepted a position as superintendent of the hydro and water plant at St. Marys, and leaves shortly to take up his new duties.

DISTRICT SANITARY INSPECTOR TO BE APPOINTED

Fort William.—An announcement was recently made that a district sanitary officer, to work in conjunction with Dr. Sparks, district medical officer of health, is to be appointed at once and will assume his duties, with headquarters at Fort William, in the very near future. Simultaneously a similar appointment will be made at North Bay. These additions to the provincial health staff taking care of the district are fully appreciated by the people of northwestern Ontario, especially in view of the additional population that is coming with the advent of pulp and paper industries and agricultural settlement, not to mention mining activity, which everyone expects to see have a pronounced boom in the north during the coming year.

Western Ontario News

Chas. West has been awarded heating and plumbing for new $12,000 residence for Sid Swift, at London, Ont.

* * *

Charles Talbot, 30 Askin St., London, Ont., wants prices on heating and plumbing, in connection with new $4,000 residence.

* * *

E. Mackness, who last fall opened a plumbing and tinsmithing business at Watford, Ont., is closing up the shop and removing his stock to a new location in Sarnia.

* * *

The Humid Air Company, Limited, has been formed at London, Ont., and will manufacture the humid air ventilator, a device to be used in connection with the smoke pipe of a furnace, to distribute moisture to various rooms.

* * *

In connection with industrial developments at London, Ont., the Utilities Commissioners contemplate extensions of water mains and service into the new factory area at an estimated cost of $200,000.

* * *

The Wright Teale Co., of London, Ont., have arranged an exceptionally attractive window display for the fair this week with a view of interesting the thousands of farmers who are in town in water pumping equipment, bath room equipment and plumbing fixtures. The window is backed up by an equally attractive store display.

* * *

With new factories assured that will employ at least 3,000 men, and an acute shortage of houses already existing, the biggest building boom in the history of London, Ont., is looked for this fall and next spring. Plans are being prepared for a large number of new homes to take care of the demand, and an exceptional business in builders' hardware and tools is looked for by men in the trade.

TO VOTE ON SANITARY BY-LAWS

Parkhill, Ont.—Parkhill ratepayers will vote on two by-laws, one to raise money to dig a septic tank, improve sanitary arrangements, the other to extend the waterworks system so as to include homes that are applying for the service.

Galt.—This city, on Sept. 5, reverted back to standard time, and all churches held their services by it last Sunday.

PROSECUTIONS IN WINNIPEG

Winnipeg, Man.—There were ten prosecutions by the local health department during March, April, May and June for lack of or defective plumbing in this city.

NEW METER INSTALLED

New Toronto.—The new meter through which all the water supplied by New Toronto to Mimico is measured has been installed. For the last 18 months the water supplied to Mimico has been based on a flat consumption of 75,000 gallons daily, at a rate of 8 cents a thousand for the first 10,000 gallons and 7½ cents for the balance. The requirements for a day will be now measured, and whatever the amount over 75,000 gallons is the town of Mimico will be required to make payment for it since the time the meter went out of commission.

CONTRACT AWARDED TO WESTERN CONSTRUCTION CO.

Chatham.—The contract for wrecking the old electric lighting plant, laying a 12-inch main, and building an addition to the filter house of the Chatham waterworks has been let to the Western Construction Co. of this city for $6,359.45, which is divided as follows:—Wrecking old lighting plant, $1,214; laying 12-inch main, $950; erecting filter house, $4,195.45. The company agrees to furnish all materials for the work except cement, which will be provided by the Water Board. The work will commence immediately.

PUBLIC WORKS WILL START NEW PIPE LINE FOR WELLAND DISTRICT

Positive assurance was given by Hon. Dr. Reid, Minister of Railways and Canals, of a start at the earliest possible moment on the construction of a pipe line from Lake Erie to supply the waterworks system of St. Catharines, Welland, Merritton and Thorold. The reservoirs are now fed from the Lake Erie level of the Welland Canal, which water will be polluted when work is started on the upper sections of the new Welland ship canal.

The new pipe line will also supply Port Colborne, Humberstone and Port Dalhousie.

Eggett & Co. have been awarded both the plumbing and heating contract for the $70,000 addition to public school at Ealing, a suburb of London, Ont.

WATERWORKS QUESTION TO BE DISCUSSED

Almonte.—Mayor McDowall has called a public meeting to discuss the question of waterworks. Little or no progress is to be expected until Almonte has a waterworks and sewerage system.

PLAN BIG C. N. R. PLANT

Montreal, September 10.—Plans are being prepared for the erection by the Canadian National Railways of a huge plant in the east end of the city in connection with the workshops of the railway. The company has already made application to the administrative commission for a supply of water, sewage arrangements, and other preliminaries to the erection of the plant.

ELECTRIC WASHER INDUSTRY

Manufacture of an electric washing machine will be commenced in Ontario by Universal Utilities Corporation, which has its headquarters at Alpena, Mich. This machine has been shown in Canada, and the manufacturers propose to make them in this country. They hope to begin production within the next two or three months if possible. One of the western Ontario cities will probably be chosen as a manufacturing location.

$11,000,000 PIPE CONTRACT

New York.—James C. Stewart, head of the firm of contractors, James Stewart & Co., has returned from France with a contract to construct a 10-inch pipe line from Havre to Paris, which calls for an expenditure of $11,000,000. "The pipe will be used," said Mr. Stewart, "to convey crude fuel oil from the seaport to the French capital and is to be finished in a year. The Government gave the contract first to a French company, which wanted three years to complete the job, and then turned it over to the U. S. concern."

OPPOSED TO PUMPING PLANT

Long Branch.—Little opposition from residents of the park to the general scheme of a waterworks for Long Branch is expected. The council of Etobicoke are presenting the scheme to the Railway and Municipal Board for approval. Postmaster A. W. Cooper, speaking of the situation, said that he thought most of the people in the park wanted water. What he thought they were opposed to and what he declared himself opposed to was the plan to have a pumping plant established and owned by the district. He believed that it would be better to receive it from New Toronto.

AGAIN OPPOSES PROPOSED ONTARIO REGULATIONS

At the recent meeting of the Ontario Municipal Association in Toronto, Ald. Cunningham, of London, Ont., again took issue with the new plumbing regulations, which, it is expected, will soon be made effective. He said that the system of plumbing should be optional with the owner of the building. "The plumbing by-law was foisted on the Government by the trade. This Act was passed two years ago, but fortunately the Lieutenant-Governor-in-Council has not signed it."

CHATHAM MAY TAKE OVER STEAM HEATING COMPANY

Chatham, Ont.—The proposition to take over the plant of the steam heating company and operate it next winter as a semi-public owned utility is not popular among all of the members of the Retail Merchants' Association. It was stated that a large number of the merchants are considering the installation of their own heating systems rather than depend upon the steam heating company, which fell down badly last year during the cold weather. It is quite likely that before winter sets in a large number of the merchants will have dispensed entirely with the Chatham steam heat.

CHATHAM STEAM HEATING PLAN NOT FAVORED BY R.M.A.

Chatham.—The proposition to take over the plant of the steam heating company and operate it next winter as a semi-public owned utility is not popular among all of the members of the Retail Merchants' Association. It was stated this morning that a large number of the merchants are considering the installation of their own heating systems rather than depend upon the steam heating company, which fell down badly last year during the cold weather. It is quite likely that before winter sets in a large number of the merchants will have dispensed entirely with the Chatham steam heat.

TO ESTABLISH WATERWORKS

Islington.—Work is to commence at once on a waterworks system to supply the district of Etobicoke township south of the Grand Trunk tracks and west of the town of New Toronto. The Township Council meeting gave the necessary authority for the work to begin at once.

The district to receive the waterworks includes the village of Long Branch and the surrounding district. Engineer E. A. James, whose company is handling the work, estimates that the scheme will cost $135,000, which figure includes a pumping station on the lake shore and all the area mains. The rest of the mains will be charged as local improvements.

United States trade with Canada for the 12 months ended July reached a total of $1,156,488,145, an increase over the corresponding period ended July, 1919, of $261,658,855. United States sales to Canada were $881,147,000, an increase of $186,289,285, while United States purchases from Canada were $537,000,000, an increase of $75,363,570.

ENVOYS EXTRAORDINARY

—From London "Punch"

Prime Minister (To Bolshevist Delegates:) "Happy to see you, gentlemen. But would you mind going round by the tradesmen's entrance, just for the look of the thing?"

Heating and Ventilating

Drafting for the Sanitary Engineer

5th Article of Series by Andrew Loucks

THE student of drafting who aspires to anything more than manual skill with the drafting instruments must acquire, in some measure, the mental qualities of the mathematician.

Such qualities as will classify the relative importance of certain subjects of study and which will lead to a clear and definite habit of thought may be quickly and easily developed through the study of simple geometrical problems.

Although it is not our intention to take up the study of geometry at any length we must now refer to certain geometrical problems before we can enter into the more interesting parts of this course.

Time after time, under actual working conditions, the student may find it necessary to refer back to some of the rules given here, and to the definitions given in the June 15th number of the Sanitary Engineer.

The student must not become discouraged if he finds it difficult to remember all of these rules and definitions. The best way to study them is to make use of them in practical application.

The copies of the Sanitary Engineer that contain them should be preserved, so that the student may refer to them as he advances in the study of this course. In this way a knowedge of the rules will gradually and easily become a part of his mental equipment until almost unconsciously he will use them in the solution of his problems.

The exact rule for a certain process may not be remembered at the time of the need for its application, but the student will no doubt find that the knowledge of certain other remembered rules will assist in recalling the rules which he may have forgotten.

Practically all problems in geometry have an essential similarity. This will not at first be apparent to the student; nevertheless he will find as he advances in his studies, that this statement is fundamentally correct.

Although we believe that generally the best way to acquire a knowledge of any subject is to analyze for its basic principles, we believe that in the study of geometry it is almost impossible to understand the principles until some use is made of them in a direct application.

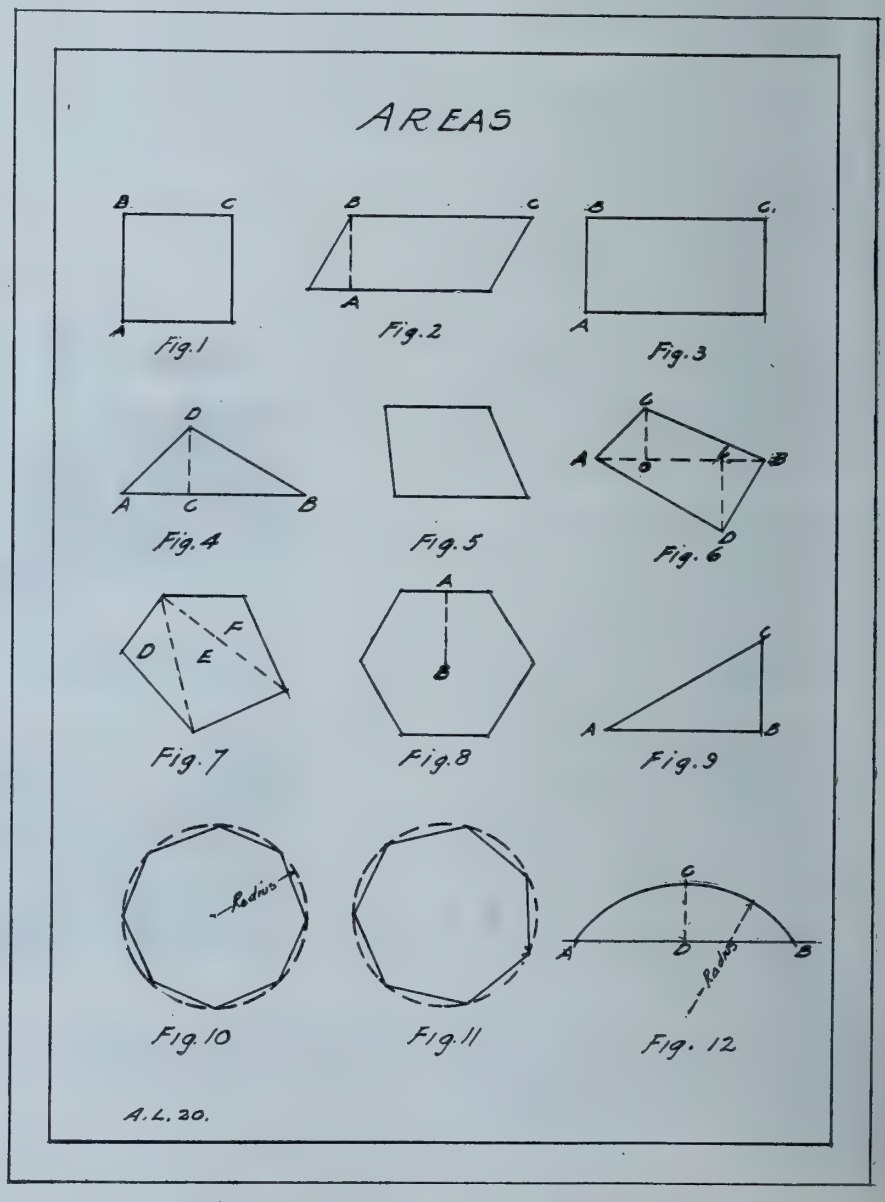
Just as we first learned the simple rules of arithmetic, such as addition, division, and subtraction long before we could understand the reason for certain of the processes which we were taught to follow, so must we take up our study of geometry, expecting in time to have a clear understanding of why the rules are used in a certain way. Then when we once grasp the basic principle of our study we shall be in a fair way to analyze our other problems without reference to printed rules. But until that time we must accept those rules as our guiding principles.

There will not be a given rule in this course which is not of practical value to the Sanitary Engineer.

This article, which deals with the subject of arrears, is elementary in its nature; yet the rules that are given here will be found of much importance when we go on to the subject of volumes in our next article.

Time and time again the draftsman may find that he will have occasion to use these rules. For instance, he may find that it is necessary to find the glass area in an elliptical dome. When he once refers to this rule in making a

(Continued on page 33.)



NEW CANADIAN PATENTS

(Issued for Plumbing and Heating Goods)

No. 202314, LOCK NUT

The Hague, Netherlands, assignee of Jan Gerard Anton Geodart, Amsterdam, Holland

Improvements in lock nuts of the kind in which the nut is provided at its end face with an eccentric projecting lug and the locking key is provided with peripheral treads, spaced so far from one another as the pitch of the threads of the

Fig. 1.

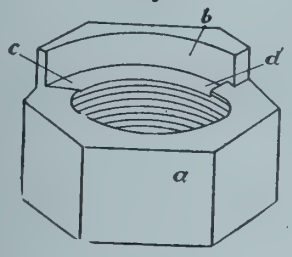
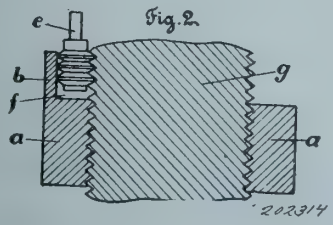


Fig. 2.



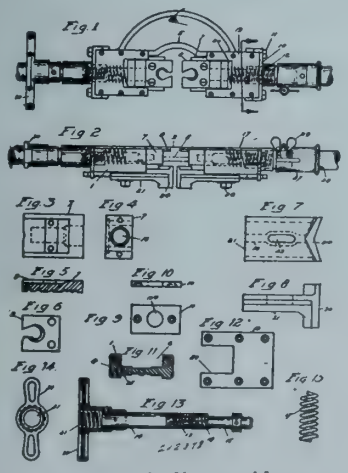
nut amounts to characterized by the end of face of the nut between the lug and the nuthole being curved according to a screw line of a pitch not less than the pitch of the threads of the nut, thus leaving a space between the lower end of the inserted locking key and said end face.

* * *

No. 202378, PIPE CUTTING MACHINE

Bradford Borden, Toronto, Ontario, Canada.

In a tool of the class described, a plurality of cutter knives, a plurality of slidable blocks having said knives rigidly secured thereto and spindle holes from their outer ends, a plurality of opposing sockets from one side and forming therewith the main frame, threaded thimbles rigidly secured to said main frame and progressive screws having threaded portions engaging said thimbles and pin ends entering the rear ends of said sockets and entering said spindle holes



and tensioned springs encircling said screws respectively between the outer ends of said slidable blocks and the inner ends of the threaded portions of said screws and exerting inward pressure on said blocks.

In a tool of the class described, a pair of blocks having their centres cut away and forming slide supports, curved bars rigidly joining said supports from one side and spacing said supports and forming therewith the main frame, plates covering the outer ends of said supports and having central openings therethrough, internally threaded thimbles rigidly secured over said openings and projecting outwardly, cutter blocks sliding in said supports and carrying knives and provided with spindle openings in the outer ends thereof, spindles having intermediate threaded portions engaging said thimbles and reduced ends entering the openings in said cutter blocks, tensioned springs encircling said spindles between the outer ends of said cutter blocks and the threaded portions of said spindles and exerting inward pressure on said cutter blocks, and pipe holding members secured to said slide supports and adjustable independent of said knives.

In a tool of the class described, a pair of blocks having their centres cut away and forming slide supports, webs joining said supports from one side and spacing said supports and forming therewith the main frame, plates enclosing the outer ends of said supports and having central openings, internally threaded thimbles rigidly secured to said plates over said openings and projecting outwardly, cutter blocks sliding in said supports, knives secured in slots on the top sides of said cutter blocks and projecting over the inner edges thereof, spindle openings in the outer ends of said cutter blocks, spindles having intermediate threaded portions engaging said thimbles and reduced ends entering the openings in said cutter blocks, tensioned springs encircling said spindles between the outer ends of said cutter blocks and the threaded portions of said spindles and exerting an inward pressure on said cutter blocks, plates secured to said slide supports over said cutter blocks and slotted to receive said knives and pipe-gripping jaws.

* * *

No. 202210, COAL AND GAS GRATE

Harry Arthur Jackson, Newark, New Jersey, U.S.A.

In combined coal and gas grate, oppositely arranged rotatable sections, each section having a longitudinally hollow

Fig. 1.

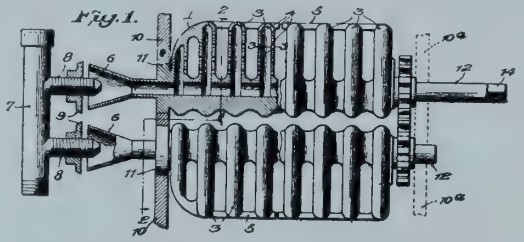


Fig. 2.

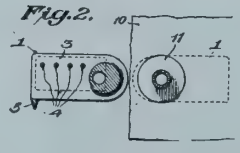


Fig. 3.

core, a series of hollow fingers extending laterally from one side of said core and communicating therewith, each finger being V-shaped, openings formed in the slides of the fingers and at a distance from their upper faces, the tops of the fingers overhanging said openings, and means for admitting a fluid fuel to said core.

In a coal and gas grate, a grate section having a longitudinally extending hollow core, means for admitting gas to said core, fingers extending from one side of the core, said fingers being hollow, the fingers being V-shaped and having gas openings in their sides, the longitudinal axis of said openings being inclined with respect to the finger sides, directing the flame upwardly and outwardly, and bars connecting the lower edges of the fingers.

* * *

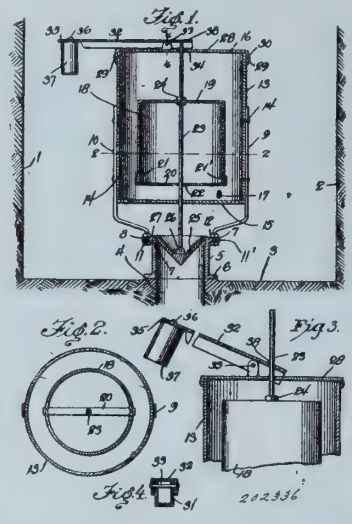
No. 202336, FLUSHING DEVICE FOR SEWERS

John A. Fletcher, John Wesley Haley and Royal Herman Thomas, Durban, Manitoba, Canada.

In a flushing attachment, the combination of a housing, an automatically operated valve means carried adjacent said housing, a stem projecting above said valve means, a lever pivotally mounted upon said housing, said lever having an inclined opening formed therethrough, said stem normally

projecting into said opening for releasably retaining said valve means in a set position, means for automatically swinging said lever at a predetermined time, thus causing said lever to be moved to free said stem and allow the stem to move through said opening and thus allow said valve means to be operated.

In a flushing attachment, the combination of a housing, a valve means having a stem extending therefrom, a float carried upon said stem for normally urging said stem upwardly, a lever pivotally mounted upon said housing, said lever having an inclined opening formed therethrough, the upper end of said stem normally projecting into said opening for engaging the lever, thus causing said stem to hold said valve means in an adjusted set position, means for automatically swinging said lever at a predetermined time, thus causing the lever to free said stem and allow the stem to move upwardly through the inclined opening.



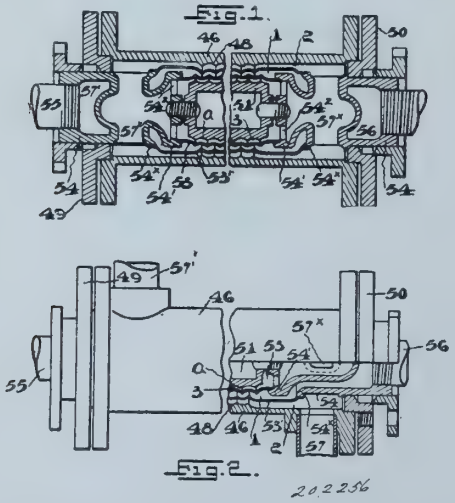
In a flushing attachment, the combination of a housing, an automatically operated valve means carried adjacent said housing, said valve means including a stem, a lever pivotally mounted upon said housing, said lever having an inclined opening extending therethrough, a float secured to said lever whereby said lever will be swung at a predetermined time, the upper end of said stem normally projecting into said inclined opening, thus causing said lever to releasably hold said stem against movement, and said lever being adapted to be swung by said float at a predetermined time for allowing said stem to move through said inclined opening.

* * *

No. 202256, APPARATUS FOR THE TREATMENT OF FLUIDS

Edward Shaw, Toronto, Ontario, Canada.

A method of treating a fluid flowing in a closed conduit which consists in forcing said fluid at a high velocity through the conduit and subjecting it to abrupt and rapidly succeeding changes of direction of movement diagonally between opposite walls of the conduit and in planes substantially parallel to the length of the conduit, thereby preventing stream line flow of films in contact with said walls.



A method of treating a fluid flowing in a closed conduit which consists in forcing said fluid at a high velocity through the conduit and subjecting it to abrupt and rapidly succeeding changes of direction of movement diagonally between opposite walls of the conduit, thereby preventing stream line flow of films in contact with said walls, and simultaneously causing a second fluid to flow along the outside of the walls of the conduit in a similar manner to the fluid within the walls.

Apparatus for the treatment of fluids for the purpose described comprising a conduit having opposite walls corrugated to form a zig-zag passageway, the salient bends of the corrugations of both walls within the conduit being in staggered relationship shaped to form pronounced apices and arranged in substantially longitudinal alignment with one another.

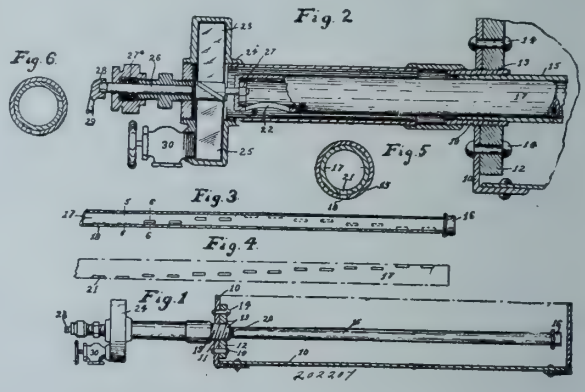
* * *

No. 202207, STEAM BOILER CLEAN-OUT DEVICE

Mike Huffman, Des Moines, Iowa, U.S.A.

In a device of the character described, the combination of an outer and an inner tube, one rotatable relative to the other and both being provided with openings capable of being brought into registration upon the turning of the rotatable tube, said tubes being designed to be placed into steam boiler near its bottom and extended outwardly through the boiler to a point of discharge, and a water motor fixedly connected to the rotatable tube at a point exterior to the boiler, said parts being so arranged that the water forced through the registered openings in the tubes will pass through the water motor and cause the water motor to rapidly rotate said rotatable tube.

In a device of the character described, the combination of an outer and an inner tube, one rotatable relative to the other, and both being provided with openings capable of being brought into registration upon the turning of the rotatable tube, said tubes being designed to be placed into a steam boiler near its bottom and extended outwardly through the boiler to a point of discharge, a motor casing exterior to the boiler, a water motor mounted in said casing and fixedly connected to the rotatable tube, and a valve controlled outlet in said casing, the parts being so arranged that the opening of said valve will cause the water forced through the registering openings in the tubes to pass through the water motor and cause the water motor to rapidly rotate said rotatable tube.



In a device of the character described, the combination of an outer and an inner tube, one rotatable relatively to the other and both being provided with openings capable of being brought into registration upon the turning of the rotatable tube, said tubes being designed to be placed into a steam boiler near its bottom and extended outwardly through the boiler to a point of discharge, a motor casing exterior to the boiler, a valve controlled outlet whereby the opening of the valve will cause water to be forced through the registering openings in the tubes and discharged through the outlet, and a water motor fixedly connected with said rotatable tube, said water motor being so arranged that the discharging water will cause it to rotate and thus rotate said rotatable tube.

* * *

No. 202411, MEASURING TANK

John L. Geier, Chicago, Illinois, U.S.A.

The combination with a tank having an opening in one side thereof, of a nozzle pivotally mounted in said opening, a counterweight normally urging said nozzle into a retracted position within said tank, and means on said nozzle adapted to support a receptacle to receive the contents of said tank through said nozzle, said nozzle being adapted when a receptacle is placed thereon to swing into an operative position.

The combination with a tank having an opening in one side thereof, of a nozzle pivotally mounted in said opening, a counterweight normally urging said nozzle into a retracted position within said tank, means on said nozzle adapted to

(Continued on page 34)

The Question Box

Editor, Sanitary Engineer:

Dear Sir,—I wish to ask a question in regard to a radiator that a customer of mine wants to put in a sun room about 40 feet from the range boiler, which sits in the cellar and is being heated by a coil in the furnace. The coil is a little large and therefore in a low pressure water system the tank boils. He wishes the radiator connected to the same boiler. There is to be about 40 square feet of radiation. He wishes a valve put in that can be turned off when too warm. The feed from the coil comes out of the top of the hot air furnace and connects to the top of the range boiler. The radiator is in the first floor of the house. I would like to know whether to use ¾ in. or 1 in. to the radiator and where best to take off for the feed and return from the boiler.

Answer.—In the July 1st number of the Sanitary Engineer, there was an answer given to a query similar to that now made by this correspondent.

The drawing then used to illustrate that query and its answer should now be referred to as it shows in detail just how the connections can be made to the radiator and tank.

In the drawing referred to the feed pipe to the radiator is shown connected to a T where the hot water riser from the top of the tank is turned to the horizontal run of the domestic hot water supply.

A note was made that "if the heating of the radiation is of more importance than is the water service to the fixtures, the T marked B should be so turned that the feed to the radiator will come directly off the top of the hot water supply."

The return piping from the radiator should be connected as low down as possible into the return line connecting the coil in the furnace to the tank.

A three-quarter inch pipe is large enough for a radiator of 40 square feet when installed in connection with a system of this kind.

The heat regulating valve may be placed on the return or on the feed as convenient.

DRAFTING FOR THE SANITARY ENGINEER

(Continued from page 30.)

practical application, it is not likely that he will ever forget the rule, and it is also likely that in the practical application he will come to a clear understanding of the reason for that rule.

Areas

The drawings shown herewith indicate certain surfaces for which we are to find the areas.

It will be advisable for the student to refer back to the June 15th number of the Sanitary Engineer, so that he may have a dictionary of certain of the terms we may find it necessary to use in this article. However, we will try to present each subject in such a way that the student who has mislaid that number will be able to continue in this study.

The Square

The square, shown by Fig. 1, has all of its sides equal. To find the area of a square: multiply the height by the width. Thus if we assume Fig. 1 to represent a square with sides of twelve feet each, the area of the square would be one hundred and forty-four square feet.

The Rhombus and the Rhomboid

Fig. 2 shows a rhomboid. According to the definition given in the June 15th article, a rhomboid is a parallelogram whose sides are not equal, and whose angles are not right angles.

The way to find the area of this figure is to multiply the length by the width. The line B-C indicates the length. The line A-B indicates the height. For example: If the line B C is six feet long, the area of the figure is twelve square feet.

The area of a rhombus may be found in the same way.

The Rectangle

The area of a rectangle is found by multiplying its length by its width. If in Fig. 3, the line B C is eight feet long, and the width is three feet, the area of the rectangle is twenty-four square feet.

The Triangle

Fig. 4 is a scalene triangle. A scalene triangle has none of its sides equal. To complete the area of any triangle the base should be multiplied by the height, and the sum so obtained should be divided by two.

If the length of the base line A B should be twelve feet, and the height of the line C D should be four feet, the area of the triangle is twenty-four square feet.

The Trapezoid

Fig. 5 shows a trapezoid. A trapezoid has two of its sides parallel. In the June 15th number of the Sanitary Engineer this figure was shown by Fig. 12 under the heading of definitions.

To find the area of a trapezoid, the sum of the two parallel sides should be multiplied by the distance between them, and the resulting figures should be divided by two.

If in Fig. 5 the lower line is nine feet long, the upper line seven feet long, and the distance between them six feet, the area of the figure would be forty-eight square feet. Thus:

$$\frac{(7+9)\times 6}{2} = 48$$

The Trapezium

A trapezium is a quadrilateral that has two of its sides parallel. Fig. 6 is a trapezium.

To find the area of a trapezium, the diagonal, represented by the line AB, should be multiplied by the sum of the two lines represented by C O and d l. Then the number so obtained should be divided by two.

If the line AB is eleven feet long, and the line CO three feet, and the line dl five feet: then the area of this trapezium will be forty-four square feet.

Irregular Polygons

To find the area of an irregular polygon, such as shown by Fig. 7, the polygon should be divided into angles, as indicated by the dotted lines enclosing triangles D, E and F. The area of each of these angles should be computed and then added together.

Regular Polygons

To find the area of a regular polygon, multiply the length of one of the sides by the perpendicular distance that side is from the centre. Then multiply that sum by the number of sides which the polygon has. For instance: The hexagon shown by Fig. 8 has sides six feet long. The area of this polygon is therefore

$$\frac{6\times 5\times 6}{2} = 90 \text{ square feet}$$

However we may find it necessary to find the area of a regular polygon when all the information we have at hand is the length of one of the sides. It is then necessary to multiply the square of one of the sides by the multiplier given with the polygon named.

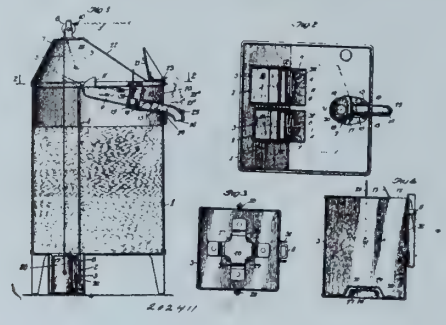
Triangle	:	0.433013
Square	:	1.
Pentagon	:	1.720477
Hexagon	:	2.598076
Heptagon	:	3.633912
Octagon	:	4.828427
Nonagon	:	6.181824
Decagon	:	7.694209
Undecagon	:	9.36564
Dodecagon	:	11.196152

Thus if we could use this method in figuring the area of Fig. 8, the rule would be expressed thus: $6\times 6\times 2.598076$, and the answer would be a trifle more than 93 square feet. The reason that this latter figure is higher than the figure obtained by the first method is that in the first method we assumed, for the sake of dealing in round numbers, that the length of line AB was five feet whereas actually the length of the line is a little more than five feet two and one quarter inches.

(To be continued.)

support a receptacle to receive the contents of said tank through said nozzle, said nozzle being adapted when a receptacle is placed thereon to swing into an operative position, and a closure shiftable into and out of position to close said opening when said nozzle is retracted.

The combination with a tank having an opening in one



side thereof, of a nozzle pivotally mounted in said opening, a counterweight normally urging said nozzle into a retracted position within said tank, means on said nozzle adapted to support a receptacle to receive the contents of said tank through said nozzle, said nozzle being adapted when a receptacle is placed thereon to swing into an operative position, a closure shiftable into and out of position to close said opening when said nozzle is retracted, a spring normally urging said closure into its open position, and a latch for holding said closure in its closed position.

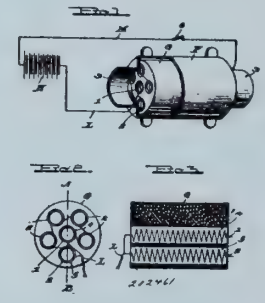
* * *

No. 202461, ELECTRICALLY OPERATED AIR HEATING DEVICE

Andrew P. Nichols, Bridgeport, Connecticut, U.S.A.

A fluid heater comprising a chamber open for insertion in a fluid conduit, an insulating core arranged within the chamber and provided with a multiplicity of fluid passages, and heating coils within the passages having their centers open so that the fluid can pass therethrough and directly contact therewith.

A fluid heater comprising a chamber open for insertion in a fluid conduit, an insulating core arranged within the chamber and provided with a plurality of lengthwise fluid passages therethrough, heating coils in the passages and spaced from the walls defining the passages and having their centres open so that the fluid can pass through the centres and through



the spaces between the convolutions, and means for supplying electrical energy to the coils.

A fluid heater composed of a casing having reduced end parts forming lateral shoulders, an insulating core in the casing having its ends arranged adjacent to the respective shoulders and having a series of axial fluid passages therethrough and a heating coil loosely placed in each passage, the coils having convolutions of equal diameter and being spaced throughout their peripheries from the walls of the passages, the ends of the coils being disposed adjacent to the shoulders and the latter extending over the ends of most of the passages.

* * *

No. 202563, FURNACE

Joseph Rock Brien, Outremont, and Ludger Brien, Montreal, Canada

In a furnace in combination with the fire box, a bridge wall intermediate of the casing of said furnace projecting above said fire box and provided at its upper end with an inwardly projecting deflecting plate, a chimney, a front and rear header provided with a plurality of relatively large holes on each side thereof, outer tubes secured in said holes on

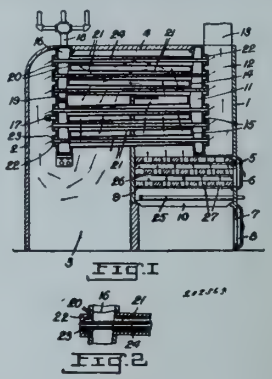


FIG. 1

FIG. 2

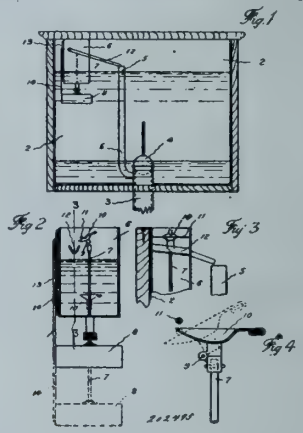
the inner sides of said headers, said tubes being disposed in an inclined position and adapted to connect said headers together, a water inlet and outlet in one of said headers, a plurality of horizontal and parallel inner tubes projecting through said outer tubes, a bushing threaded in each of said large holes and provided with a reduced threaded central hole in which is secured the end of each of said inner pipes, substantially as described.

* * *

No. 202495, DISINFECTING DEVICE

Thomas Sowerby, Vancouver, British Columbia, Canada.

A disinfecting means comprising the combination with a flushing tank and the overflow and delivery pipe therefrom,



a disinfectant containing vessel secured in the upper part of the tank, a stem vertically movable through the bottom of the vessel, said stem having an open container pivotally mounted on its upper end, and a float secured to its lower end, a channel projecting into the vessel adjacent the container at the upper limit of its movement, said channel delivering into the overflow pipe of the tank, and provision adjacent the upper limit of the movement of the container for tilting it and delivering its contents into the channel.

TAKE ON NEW LINE

Montreal.—Richardson and Bureau, Manufacturers Representatives, 55 St. Francois Xavier Street, Montreal, secured the Canadian selling agency for Henry Cheney Hammer Corporation.

FORM PAGE-HERSEY TUBES LIMITED

Page-Hersey Tubes, Ltd., has taken over the entire business of Page-Hersey Iron Tube and Lead Co., Ltd. No change in management will be made.

CURRENT WIT AND WISDOM

BENEFITS EVEN

"How is it, Sandy," asked a visitor of a Scotch coal merchant, "that you quote the lowest prices in town and make reductions to your friends, and yet you can make money?" "Well, it's this way," explained Sandy, in undertone. "Ye see, I knock off two shillings a ton because a customer is a freen o' mine, and then I knock off two hundred-weight a ton because I'm a freen o' his."

WELL, JUST BECAUSE

"Mamma, why has papa no hair?"

"Because he thinks so much, my dear."

"But why have you so much?"

"Because—go away and do your lessons, you naughty boy."

LET 'EM ALL COME

Reggie—Come and dine with me tonight, old thing.

Algy—Sorry, old bean, I'm going to see "Abraham Lincoln" tonight.

Reggie—Well, bring him along, too.

Review of Markets and of World's Production of Tin

About Half of World's Supply Mined in the British Empire

MR. FRANK MERRICKS, C.B.E., an English authority on tin, says that about one-half of the world's supplies of tin is mined in the British Empire, the chief producing country since 1891 being the Federated Malay States, says the "Daily Metal Reporter." The other tin-producing countries of the empire are Cornwall, Nigeria, Australia and South Africa. The principal foreign tin-producing countries are Bolivia, the islands of Banca and Billiton in the Netherlands, East Indies, Siam and China. Prior to 1891, the tin output of the empire was confined to Australia, British Malays and Cornwall, the value of the Australian production being £9,879,539, while that of British Malaya was estimated at £5,400,000. The value of the Nigerian output is becoming important, and to-day exceeds that of Australia. The output of tin in British Malaya has fallen during the last few years, and in 1919 amounted to only 36,867 tons, as against nearly 50,000 tons in 1914. Simultaneously tin production in Bolivia, Siam and China has increased, so that the proportion of the world's tin supplies produced in the British Empire is not so large as it was until quite recently. The empire's tin output, however, is still more than ample for her own needs, and must also be drawn upon by other countries that are large users of this metal. Most of the tin mined in British Malaya is refined in the smelters of the Straits Trading Company at Singapore. These tin smelting plants are the largest in the world, and deal not only with the produce of the F.M.S., but also with ore shipped to Singapore from Siam, the Netherlands, East Indies, South Africa and Australia. The exports of tin from Singapore are consequently much greater than the actual production of British Malaya.

In Nigeria the existence of tin on the Bauchi plateau was known to the natives long before the arrival of the British, while it became known to Europeans as long ago as 1885, at which date, however, the country was too unsettled for prospecting. An official mineral survey was undertaken in 1903, tin mining was started in 1906, exports of tin concentrate were first recorded in 1907, and in 1918 82 tin mining companies were operating in the northern provinces of Nigeria, mostly on the Bauchi plateau. Up to the present, the highest recorded export tonnage for any year is 9,966 long tons of ore in 1917, the figure for 1918 being 8,294 tons. In Australasia, Tasmania is the largest producer of tin, followed by New South Wales and Queensland, while small quantities are obtained in Victoria and in the northern territory. A large proportion of the output in New South Wales is won by dredging in the Tngha, Emmaville and Glen Nines divisions. Bolivia is the second largest tin producing country in the world. Before the war, most of her output of "barilla," or tin concentrates, containing 60 to 65 per cent. of tin, went partly to Germany and partly to the United Kingdom for smelting. In 1919, over 27,000 tons of tin ore were imported into this country from South America, the average annual output being about 8,300 tons. The ore is sent to Singapore for smelting, and the product comes into commerce as "Straits" tin. China's production is also reported to have increased considerably in recent years. The chief locality of production is Kochiu, about 22 miles from the French railway from Yunnan to Haiphong. The ore is smelted mainly in native furnaces to a metal of about 90 per cent. to 92 per cent. purity, and is then sent to Hong Kong, where it is refined, part of the product being returned to China for consumption there, and the remainder being exported.

Conditions Improved at Montreal

Montreal.—In discussing the present and prospective situation in Montreal trade circles with Sanitary Engineer Capt. D. A. Bethune, president of the Montreal Master Plumbers' Association, stated that there is general satisfaction with present employees. "There was some talk of a strike a while ago, but we do not hear much about it now," he said. "There is plenty of labor and matters are quite satisfactory."

As to the present condition of business Capt. Bethune said that there was room for improvement. "Many people are coming back again to the city, and this is the time of the year for getting repairs made for the winter. It is very difficult to get some materials, especially pipe of certain sizes. There might be more business but it is fairly good."

The difficulty of obtaining other raw materials is rather marked, but altogether Captain Bethune is very pleased with the manner in which Assciation matters, in particular, are working out. Theer is a splendid spirit all round, and conditions are promising.

Canadian Export Trade

Canadian firms who would like to receive information about trade opportunities overseas should notify the Commercial Intelligence Branch of the Department of Trade and Commerce that they are interested in export trade.

Poor Outlook on Iron Pipe

Montreal. — A large manufacturer stated this week to Sanitary Engineer that the outlook on iron pipe is anything but satisfactory. The whole situation has been developed because of lack of skelp. As there is much dependence upon the part of Canadian manufacturers on the United States market for skelp there is considerable anxiety here relative to the future supplies of pipe.

"The situation is very bad," said one informant this week. "It is simply a question of not being able to get skelp. As it all comes from the outside—principally from the United States, there is nothing to work with and supplies are short. The situation is getting worse, rather than better. And this shortage of skelp is accredited to the condition of labor in the United States."

Prices are naturally very firm, but there has been no alteration, as yet, of the basis, price list number 46 being effective. Neither is any advance anticipated at this writing.

Canada and Britain Big Markets of U.S.

[illegible]ton. — Department of Commerce figures published to-day show exports from the United States to Canada during July totalled $98,484,423, while imports from Canada were $42,720,420. Exports to Great Britain were $128,894,945, and imports $46,523,662.

British and U.S. Imports

During June the imports into Canada from the United Kingdom amounted to $24,000,000, and exports thereto $33,000,000. From the United States the imports were worth $88,000,000, the exports totalling $46,000,000.

Exports and Imports of Canada Almost Even

Ottawa, Ont., Aug. 29.—According to a summary of Canadian trade issued by the Dominion Bureau of Statistics for the 12-month period ending July 31, exports and imports are almost even.

The total imports are valued at $1,253,191,735 and the exports at $1,264,463,537. Figures covering the same period of 1919 were: Imports, $870,850,691, and exports, $1,273,443,272.

Several Cities Revert to the Standard Time

Kitchener.—Daylight saving time, which has been in vogue here and in Waterloo since the beginning of last May, terminated Sept. 5 and standard time came into effect. It is likely that a referendum will be submitted at the municipal elections in January on the question whether daylight saving should be adopted annually in the two towns.

Brockville. — Brockville reverted to standard time on Sept. 5th, after having used daylight saving time for the past three months.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

THE outstanding feature of the markets is the general advance on all lines of enamelware. All baths, sinks, closets and combinations have been advanced ten per cent. This revision was forecast in Sanitary Engineer in the last issue. The shortage and scarcity of raw material is given as the reason for the change.

There are not many other changes in prices to record. Some lines of grease cups and injectors have been advanced.

Bar iron and mild steel has been advanced slightly in some quarters, due as much as anything it is said to increased costs and to the scarcity.

All goods made from galvanized sheets continue to be scarce and the same can safely be said with regard to black sheets and plates.

Some lines of pipes and fittings, especially malleable fittings, also remain difficult to procure.

Business on the whole is reported to be very fair for a dull month and if goods can be obtained the prospects for this fall are regarded as good.

Collections are said to be coming in satisfactorily.

QUEBEC MARKETS

MONTREAL, Sept. 13.—Market changes are not so numerous as they were, but enameled ware furnishes the big change and this has registered a ten per cent. advance. There was little surprise with this change in view of the fact that it was forecast a couple of weeks ago and Sanitary Engineer stated in its report that there was likely to be an increase in price at any time. Scarcity of many gauges of sheets serves to hold firm the markets on these and also on eavetrough, conductor pipe and steel shingles, etc. Range boilers are steadily firm but are unchanged. There is a freer movement of soil pipe and the price on this and on soil pipe fittings remains unchanged. Some lines of grease cups and injectors and ejectors are higher in price. Canada plates are scarce and are likely to be scarce this fall. Solder prices are lower, due to an easing of price on tin and this was induced by reduction of exchange. There is a decided scarcity of iron pipe and this comes as a result of skelp shortage. Compression work is unchanged. Cast and malleable goods are very scarce and it is questionable if there will be any early relief. Radiators are in active demand and the undertone is steadily firm. Cotton waste is steady, in good demand, and unchanged in price. There has been an easing of the undertone on most ingot metals.

Enameled Ware Is Ten Per Cent. Dearer

Montreal.

ENAMELED WARE.—"Higher prices likely on enameled ware," stated the caption in September 1 issue of Sanitary Engineer. Since that time an advance has been effected and the increase is 10 per cent. all around. The advance is due, state jobbers, to higher raw material costs and the general maintenance of high wage schedules. In view of the forecast above referred to the increases were not unexpected. Supplies of various lines are said to be ample for trade requirements, and there is, altogether, a better buying spirit than has been manifest for some time.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide	$40 75
Bath tubs, 5½ ft.	45 32
Lavatories—	
17 x 10" Apron F139 or P4045	12 15
18 x 24" Apron F154 or P3845 or P3847	18 70
18 x 21" Apron F169 or P4205	13 97
18 x 21" Roll Rim F197, F199 or P4655-6	12 21
17 x 19" Roll Rim F241 or P4345	9 95
Sinks, roll rim, 18 x 30 in.	18 26

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 94	$5 88	$5 83
18 x 30	6 82	7 18	6 71
20 x 30	7 81	7 75	7 70

Steel Baths with Steel Rim—	
4 ft. 6 in.	$17 87
5 ft.	17 87
Enameline Baths with Steel Rim—	
4 ft. 6 in.	$17 32
5 ft.	17 32
5 ft. 6 in.	17 87
6 ft.	19 25

Lavatories and Sinks Baths Held on Basis

Montreal.

BATHTUBS, ETC.—Prices have been steady, though firm, on tubs, lavatories, and sinks. These lines are now in fairly good supply and there has been a fair demand from the trade for all of them. The advance in freight rates will very probably have an effect on the price in due time.

Scarcity Sheets Holds Price Conductor Pipe

Montreal.

PIPE AND EAVESTROUGH.—While there has been no advancing of the price basis for conductor pipe and eavestrough, the tendencies have been firm right along. Supplies of galvanized sheets, while augmented in some cases, are far short of the trade requirements. There is a fair demand for both trough and conductor.

Ample Range Boiler Stock; Prices Firm

Montreal.

RANGE BOILERS.—In view of the fact that some manufacturers have been fortunate enough to hold certain supplies of sheets, there has been a ready supplying of the market with range boilers. The movement continues quite active and prices are ruling without quotable change of any kind.

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Supplies Soil Pipe Said to be Improved

Montreal.

SOIL PIPE, FITTINGS.—In view of the fact that supplies of soil pipe are somewhat improved, it is expected that the trade will be able to obtain the necessary stocks this fall. Prices are held without change and this applies also to soil pipe fittings.

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, add 10% to list.
FITTINGS—
4-inch, net list.
2 to 6 inch fittings, 20% discount.
8inch pipe and fittings, add 20% to the list.

Some Sheets Arrive But Prices Holding

Montreal.

SHEETS AND PLATES. — While prices are holding without change there has been an improved delivery of galvanized sheets from the Old Country. Producers there have been able to take care of increased business, and while the improvement is naturally gradual, Sanitary Engineer understands that one importer has delivered to the Canadian trade upwards of 3,000 tons within recent weeks. This is a welcome improvement and advices have indicated that there will be a continued increase in the tonnage forwarded to the Canadian market. Black sheets are still rather scarce and prices are holding steadily.

BLACK SHEETS—	
10 gauge	10 95
12 gauge	11 00
14 gauge	11 05
16 gauge	11 15
18-20 gauge	11 20
22-24 gauge	11 25
26 gauge	11 30
28 gauge	11 45
GALVANIZED SHEETS—	
U.S. Standard—	
10¾ gauge	15 00
28 gauge	14 60
26 gauge	13 25
22 to 24 gauge	14 05
20 gauge	14 05
18 gauge	14 05
16 gauge	12 75
English Standard—	
28 gauge	13 00 — 13 50
26 gauge	12 75 — 13 25
24 gauge	12 15 — 12 65
22 gauge	11 80 — 12 30
18 and 20 gauge	11 35 — 11 85

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Some Grease Cups and Injectors Higher

Montreal.

VALVES, INJECTORS. — Discounts have been changed on a number of Penberthy valves, etc. Injectors are now selling at a discount of 40 per cent.; ejectors at 55 per cent.; water gauges, No. 1A and 2A, 40 per cent.; No. 81, 84, 88, 81G, 84G, 88G, add 20 per cent. to the list. Oil cups No. 305 and 304 are now priced at net list. Air valves are 5 per cent. off. Grease cups, 33 1-3 per cent. off, and oil cups No. 300, 301 and 303, 5 per cent. advanace; lubricators No. ½, $11.88, and No. 1, $14.35 each.

Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Supply Canada Plates Does Not Meet Demands

Montreal.

CANADA PLATES.—Those desiring quantities of Canada plates who have not purchased them will have little encouragement of obtaining necessary supplies for this fall's trade. The absorption of stock has been rather extensive, and while those placing their orders earlier in the season have procured at least part of their requirements, the importers state that future supplies are likely to be very scarce indeed. Prices are consequently firm and quotations nominal.

Firm Undertone on Iron and Steel

Montreal.

IRON AND STEEL.—There is no definite change in the price of iron and steel this week and the undertone, in view of lessened production, is very firm. While no change of price may be made immediately, any alteration of present schedules will doubtless be upwards.

IRON AND STEEL

Iron finish machinery steel	$5 05
Norway iron	13 50 — 15 00
Single reeled machinery steel	6 50
Spring steel	6 00
Sleigh shoe steel	5 50
Tire steel	5 20
Toe calk steel, per 100 lbs.	5 90
Band steel	5 00
Harrow tooth steel	5 15
Mining tool steel, per lb.	0 24½
Black diamond tool steel, per lb.	0 24½
Black diamond cast steel, per lb.	0 24½
Common bar iron, per 100 lbs.	4 65
Refined iron, per 100 lbs.	5 65
Mild steel	5 00

3-16 and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

Lower Solder Prices; Lead Pipe Unchanged

Montreal.

LEAD PRODUCTS.—There has been an easier undertone throughout the list during the past week, and a notable feature is that of reduction in the price of various solders. "Guaranteed" is now selling at 35½ cents per pound; "strictly," 33½ cents; "commercial," 31 cents; "whitening," 30¾ cents. While there has been no change in the price of sheet lead or lead pipe the tendencies are softer on these lines and a shading of present prices at any time will not be surprising.

Lead pipe, per 100 lbs.	17 00
Lead waste, per 100 lbs.	18 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	List plus 30%
Lead wool, lb.	0 16
Lead sheets, 2½ lbs.	0 14
Lead sheets, 3 to 3½ lbs. sq. ft., lb	0 13¼
Do., 4 to 8 lbs., sq. ft.	0 13
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 37½
Solder, strictly, lb.	0 35½
Solder, commercial, lb.	0 33
Solder, wiping, lb.	0 32¾
Wire solder—	
40-60	0 37½
45-55	0 39¾
50-50	0 42¼
Zinc sheets, casks	0 16½
Do., broken lots	0 17

Scarcity Iron Pipe; Little Improvement

Montreal.

IRON PIPE.—Prices have been steadily maintained on pipe for the past two weeks. There is little probability of any easing of the price basis in view of the fact that demand for pipe exceeds the available supplies, and if the sales are maintained, as they probably will be, neither prices nor stocks are likely to show early improvement. Skelp is scarce. This has resulted from the labor difficulties existing at points of production in the United States.

Standard Buttweld Pipe
List No. 46
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	23.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.75	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2.66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4.39	4.39	5.21

Compression Work Firm; Improvement in Demand

Montreal.

COMPRESSION WORK.—There has been little change in the undertone on compression work. Prices are firmly maintained and there is much activity, jobbers report. Discounts applying to various plain and plated goods are holding unchanged and there is no change in the list.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%

Cast and Malleable Products Very Scarce

Montreal.

FITTINGS.—There is little likelihood of lower prices on malleables for some time to come. As a matter of fact advances, while not forecast, would be more in order, for the supply of malleable material is altogether short of the present needs. Prices have gone up in the States but here, some feel, there will be no increase in quotations. The heavy requirements of automobile manufacturers, railway companies and other manufacturers requiring this type of iron in their work are insistent. One maker states that there will be no relief in

the situation for at least six months. Price discounts are unaltered.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2 in.	8%
Do., 2½-in. and larger	5%
Nipples, up to 4-in.	50%
Do., 4½-in. and larger	40%
Do., running thread, 4-in. and under.	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Demand Is Brisk; Radiators Are Steady

Montreal.

RADIATORS. — Prices have been firmly maintained on radiators but there has been no quotable change. The tendencies indicate that there will be no reduction of price, for manufacturers have had their own troubles and for a time there was doubt as to the probability of supplies being adequate for the trade needs this fall. At the same time there is an active demand at present for the product of factories making these, and it would seem that no surplus of radiators will be available for many weeks, if not months.

Some Active Buying Helps Scrap Market

Montreal.

OLD MATERIAL. — There has been considerable selling of old scrap to buyers from the Old Country. This has helped, consideraby, in relieving Canadian buyers of accumulated holdings, particularly of heavy iron products. There has been a fair, though not more than seasonable volume of trading for other scrap metals.

Dealer's Buying Prices		
Automobile tires	0 01½	0 02
Yellow brass	0 09	0 10
Red brass	0 16	0 17
Light brass	....	0 06½
Scrap zinc	....	0 06¼
Lead, heavy	0 06	0 07
Lead, tea	....	0 03½
Light copper	....	14 50
Heavy copper	....	18 00
Wrought iron, No. 1, per gr. ton	19 00	20 00
Malleable scrap (ton)	....	22 00
Pipe scrap (ton)	....	14 00
Stove plate, per ton	....	30 00
Heavy melting steel	24 00	25 00
No. 2 busheling	10 00	12 00
Boiler plate	17 00	18 00

Cotton Waste Steady; Supplies Not Heavy

Montreal.

WASTE. — There has been a steady demand for cotton waste from the trade, and while the supplies are adequate to take care of immediate needs, there is said to be little more than ample stock just now. This is but temporary, however, and the matter of transportation will be better, importers think, in the immediate future.

Easier Undertone on Most All Ingot Metals

Montreal.

INGOT METALS.—Prices have eased considerably on nearly all ingot metals. This is due, very largely, to the change in exchange rates, and if this softening continues there will perhaps be lower quotations still.

TIN.—This is easier at 54-55 cents a pound, and there is a steady though seasonably limited volume of business.

COPPER.—Half a cent has been lopped off the price of both electrolytic and casting grades, the former now selling at 24 cents and the latter at 23½ cents.

LEAD.—Virgin lead is easier in price, due to declines in primary centres. The present price is ruling around 9¾ cents, while re-melted lead is half a cent cheaper.

ANTIMONY.—A full cent a pound has been lost on this, the week's quotations being 9½ cents in jobbing circles.

SPELTER.—This has lost a quarter of a cent per pound, the quotation now being 10½ cents.

ALUMINUM. — Thirty-seven cents a pound is quoted on this, and there is a steady, though limited, demand for the product.

ONTARIO MARKETS

TORONTO, Sept. 13.—There has not been very many changes to report, but the main feature was the all-round advance in enamelled ware. This has been advanced ten per cent., and in view of the higher cost of all raw materials entering into these goods the increase is not surprising. Pipe remains unchanged, but both it and pipe fittings continue to be scarce. The general view is that it is a little early yet to say what effect the new freight rates will have on plumbing goods.

Bar iron, angles, etc., have been advanced slightly, but strikes are causing the situation in regard to these to be worse. There has been a shortage in iron for some time and it is not improved by local markets being called on by dealers who usually get their supplies from Montreal.

The scarcity in Canada plate seems very serious and there is a pronounced difficulty in getting stovepipes. Boiler tubes and plates are still very scarce and the same can be said of all products of galvanized sheets, such as conductor pipe, eavestroughing, etc.

The demand is very good for all lines of stoves and ranges, and also for furnaces. In fact the demand exceeds the supply. Radiators are unchanged in price. Brass goods are firm but without change in price, except some lines of injectors and grease cups.

The demand for ingot metals is said to be a little less with not much change of prices.

Ten Per Cent. Advance on all Enamelled Ware

Toronto.

ENAMELLED WARE.—Prices on all lines of enamelled ware—baths, lavatories, sinks, and closets, are advanced 10 per cent. Scarcity of materials, with higher prices of same, and the difficulty of obtaining supplies, is given as the cause of the advance, and though some think that present prices will remain for a while, others hold the opinion that still higher prices are probable before long.

Business last month was fair, but a falling off is noticed up to the present this month. September, however, is said to be usually a quieter month than the following months of the year in the trade. More business could be done if materials were available in better quantities. Latest prices on standard lines are as follows:

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide	$40 75
Bath tubs, 5½ ft.	45 30
Lavatories—	
17x10" Apron F139 or P4045	12 25
18x24" Apron F154 or P3845 or P3847	18 70
18x21" Apron F169 or P4205	14 00
18x21" Roll Rim F197, F199 or P4655-6.	12 20
17x19" Roll Rim, F241 or P4345	9 95
Sinks, roll rim, 18x30 in.	18 25

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 95	$6 00	$5 85
18 x 30	6 85	7 15	6 70
20 x 30	7 80	7 75	7 70

Prices Firm on Corrugated Sheets

Toronto.

CORRUGATED SHEETS.—There has been a difficulty in obtaining supplies of galvanized sheets, and naturally corrugated sheets are correspondingly scarce. The situation is not improving to any appreciable extent, and prices are firm and higher prices than the regular quotations are often paid to secure delivery. Latest prices are given below:

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	12 00
No. 26 gauge	12 75
No. 24 gauge	18 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Conductor Pipe and Eavestrough Scarce

Toronto.

CONDUCTOR PIPE AND EAVESTROUGH.—There is a continued shortage in the market of these commodities, due to the inability to secure adequate supplies of galvanized sheets from which they are made. Prices are 25 per cent. above list.

PIPE (Conductor) Plain	
2 in., in 10-ft. lengths, list	8 00

3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in.	$6 90	15-in.	$12 50
10-in.	7 70	18-in.	16 00
12-in.	9 10		

Add 25% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Conductor Elbows High and Scarce

Toronto.

CONDUCTOR ELBOWS.—Galvanized elbows are scarce with price high. With stocks of raw material so low and deliveries so delayed it does not look as if any improvement can be looked for for some time. Present prices are 50 per cent. above list.

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Canada Plate; Outlook Bad For Stove Pipes

Toronto.

CANADA PLATE.—It begins to look as if some substitute will have to be found for stove pipes, as Canada plate is nearly off the market, and some dealers are almost despairing of being able to get supplies. The situation seems to get worse each week instead of better.

Shortage in Pipe Continues; Prices Steady

Toronto.

STANDARD PIPE.—There is said to be no improvement noted in wrought iron or steel pipe, and there is a continued shortage in many sizes. Supplies are smaller than the demand and many mills are said to be still closed on account of scarcity of skelp and supplies. No change of price has been recorded though it is said that increased freight rates may possibly lead to further adjustments. Quotations are as per list No. 46, which is given below:

Standard Buttweld Pipe

Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8 63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.01
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.17
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.75	107.37	.....	.....

Standard Lapweld Pipe

Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$ 38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2 66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4 39	4.39	5.21

Pipe Fittings Are Scarcer, But Unchanged

Toronto.

FITTINGS.—Prices on pipe fittings are steady and unchanged. Stocks are short and deliveries none too easy to obtain, especially in malleables, and if any change in price occurs, it will hardly be in a downward direction. Quotations are:

PIPE FITTINGS

Cast iron fittings	Plus 100%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	Plus 50%
Do., 2½-in. and larger	8%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%
Couplings, 4½-in and larger	Net list

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Radiators Unchanged; Demand Good

Toronto.

RADIATORS.—The demand for radiators keeps up and prices are unchanged. The effect of the higher freight rates on these goods is not known yet.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 2 3in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 40% for hot water and 41% for steam.

Wall Radiators—5 in., $1.15; 6 in., $1.10; 7 in., $1.05; 9 in., $1.05; 12 in., $1.05. Discount 40%.

Closet Bowl Prices Up Ten Per Cent.

Toronto.

CLOSET BOWLS.—The prices on closet bowls and combinations are 10 per cent. higher. Increased cost and scarcity of raw materials are given as the cause of the advance, together with the higher freight rates on all supplies. The demand, though fair, is said to be a little less.

Supply of Range Boilers Less Than Demand

Toronto.

RANGE BOILERS.—The demand for these has been steady, and difficulty is being experienced in filling orders as stocks are being depleted and material is scarce. Prices are as yet unchanged but it is doubtful how long they will remain so as raw materials are so much higher in price and very scarce.

Plumbers' Oakum Unchanged But Firm

Toronto.

PLUMBERS' OAKUM. — There has been no change in the price of plumbers' oakum and quotations remain about $9.50 per 100 lbs. Demand is steady.

Iron and Steel; Some Quotations Higher

Toronto.

IRON AND STEEL. — On account of the strikes in the mills east of Toronto and the fact that the mills that are running are charging more for their products there has been in some cases an advance on bars, angles and sheets of twenty-five cents per hundred pounds.

A good many lines and sizes were short previously and the strike will not make matters any easier and should it be prolonged a very decided shortage in these lines will likely be the result.

The increased freight rates are said to affect prices to the extent of about ten to fifteen cents per hundred pounds, and taking this into consideration together with the high prices asked by the mills it had been expected that an increase of at least fifty cents per hundred pounds might have been looked for.

Some jobbers are of the opinion that further advances are likely when the full effect of the increased freight rates is felt. They think that the Steel Corporation are almost sure to revise their prices before long owing to the higher cost on coal and coke. Latest quotations are as follows:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	$ 6 25
Common bar steel, ¼ in. and heavier	5 75
Common bar iron, 3-16 in. and lighter	6 25
Common bar iron, ¼ in. and heavier	5 75
Angle base	5 75
Horseshoe iron	6 00
Tire steel	5 95
Band steel	6 00
Spring steel	12 75
Mining drill steel	31 95
Sheet cast steel	....
Mild steel	5 75
Norway iron	16 25
Toe caulk iron	6 70
Sleigh shoe steel	5 75
Hoop steel	6 75

Boiler Tubes and Plates Scarce and Prices Nominal

Toronto.

BOILER TUBES AND PLATES. — No change is announced in boiler tubes and plates as yet, but some dealers think that an advance in prices due to increased freight rates as well as the scarcity of these lines, is bound to come. The scarcity is said to be very largely the result of want of cars for shipping same. There should be an improvement in this state of affairs before long if reports from the mills are correct, but up to the present very little improvement has been felt here as yet and dealers are glad to accept part orders.

Prices are only nominal as in many cases premiums have had to be paid.

Good Call For All Kinds of Asbestos Products

Toronto.

ASBESTOS PRODUCTS. — There is said to be a good demand for all kinds of asbestos products, including pipe coverings and asbestos cement and furnace coverings. Prices are very firm and the market is rising. It is said that the higher freight rates are bound to have the effect of causing an advance in prices, especially in the case of heavier lines such as asbestos cements. No particular shortage is said to exist in these goods.

Cotton Waste Unchanged; Prices Firm

Toronto.

COTTON WASTE.—There has been no change in prices which remain firm, and dealers in these products say they do not yet know what future prices are likely to be.

The present demand is fair and prices are as following quotations:

WASTE	
Cream, Polishing	0 28
WHITE	
XXX	0 23
XX	0 21½
X	0 20
Japanese	0 17
XXX	0 24
XX, grad.	0 22½
XLCR	0 21
X Empire	0 19½
X Press	0 17½
X Special	0 15½
XC	0 18½
COLORED	
No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 19
Lion	0 17
Standard	0 15
Popular	0 13
Keen	0 11

Above lines subject to trade discount for quantity.

Little Change in Lead and Zinc Products

Toronto.

LEAD AND ZINC PRODUCTS.—Not very much change has taken place in these lines, but slightly easier prices are recorded in solder, but prices vary in different quarters on this commodity. Bar lead is said to be slightly easier, but no change in prices of pipe or traps is recorded.

Quotations on principal lines are:

Lead pipe, list, per lb.	0 17
Lead waste pipe, list, per lb.	0 18
Do., over 8 in., list, per lb.	0 19
Lead traps and bends	add 30%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 13
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 41
Solder, strictly, lb.	0 35
Solder, commercial, lb.	0 31
Solder, guaranteed, lb.	0 37
Solder, wiping, lb.	0 33
Zinc sheets, per lb.	0 19

Black and Galvanized Sheets Firm; Unchanged

Toronto.

BLACK AND GALVANIZED SHEETS and plates are said to be firm as ever, and jobbers are finding it extremely difficult to replenish stocks except at extra premiums. The shortage of plates has not lessened at all, but some jobbers are of opinion that it is largely on account of transportation difficulties as there are said to be fairly good stocks piling up at the mills which they cannot get cars to ship in.

Prices are nominal and below are the ordinary quotations:

BLACK SHEETS	
14 gauge	$11 35
16 gauge	11 50
18-20 gauge	11 80
22-24 gauge	11 85
26 gauge	11 90
28 gauge	12 00
3-16 inch plate	
¼-inch boiler plate	

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS	Premier		Apollo	
10¾ oz.	$12 00	$12 50	$12 00	$13 25
U.S. 28	11 45	12 70	11 45	12 85
U.S. 26	11 15	12 40	11 15	12 55
22 and 24	11 00	12 25	11 00	12 40
18 and 20	10 70	11 95	10 70	12 10
16	10 70	11 95	10 70	12 10
12 and 14	10 55	11 20	10 55	11 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Valves and Bibbs Firm Without Change

Toronto.

VALVES AND BIBBS. — There is no change in brass goods and compression bibbs and valves are holding firm. Jobbers report a fair amount of business for the season of the year, and stocks at present are not reported short.

Prices on better known lines are as follows:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Do., Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C.	Net
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	list plus 20%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Stoves and Ranges Firm; Demand Good

Toronto.

STOVES AND RANGES. — The demand is continuing good for these lines, and dealers are finding it difficult in many cases, it is said, to get deliveries. Good business was reported from those firms having exhibits at the Fair.

Scarcity of material and delay in transportation is said to be hampering production, and many manufacturers stated that the demand is larger than the output.

Furnaces Moving Well; Demand Exceeds Output

Toronto.

FURNACES.—In the same way as stoves and ranges there is said to be a good demand for furnaces and it exceeds the output. Manufacturers are unable to keep pace with their orders for these goods owing largely to the shortage and difficulty in getting raw materials.

Not Much Change in Ingot Metals

Toronto.

INGOT METALS.—Little change is reported in ingot metals this week. Prices are inclined to be firmer. Tin recovered somewhat while lead was a trifle easier. The demand is said to have been lighter.

TIN.—This metal is reported stronger and quotations range from 55 to 57 cents per pound.

LEAD.—The price of lead is a little lower on this week's market and it is being quoted at $9.75.

COPPER.—Copper is reported to be strong in primary markets. Local quotations are costings 24 cents per pound.

ANTIMONY. — Not much demand is being observed and prices range from 10 to 14 cents according to brand.

SPELTER. — This is reported as being quiet and price is still round 10 3-4 cents per pound.

ALUMINUM.—No changes in aluminum prices are reported and stocks are said to be fairly large. Quotations are from 37 to 39 cents per pound.

WINNIPEG

WINNIPEG, Sept. 13.—The markets for the past two weeks have remained firm. Not many changes have been made in prices during the past month but many revisions are expected in a few days on account of increased freight rates. Notice has been given that a ten per cent. advance has been made on all enamelware, closets, sinks, baths, etc., but no change has been made on present stocks in hand.

A good trade is being done at the present time in plumbing and steamfitting goods, and a record would undoubtedly have been reached this fall if merchants had been able to procure sufficient supplies.

Prices of Solder Have Been Revised

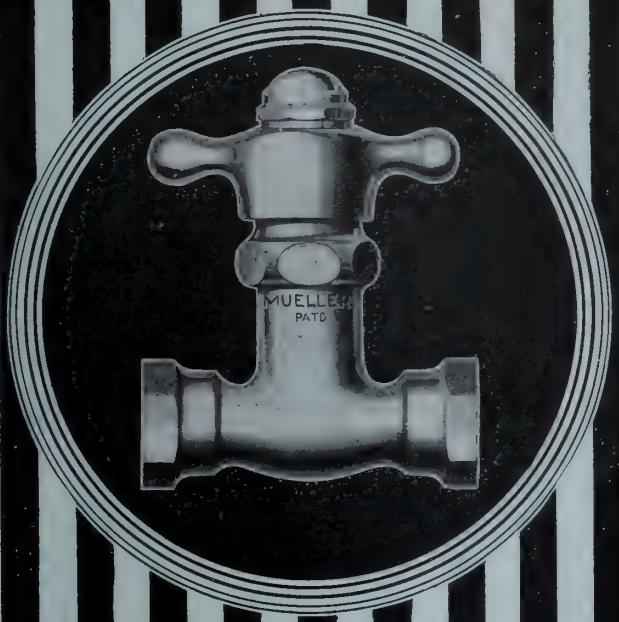
Winnipeg.

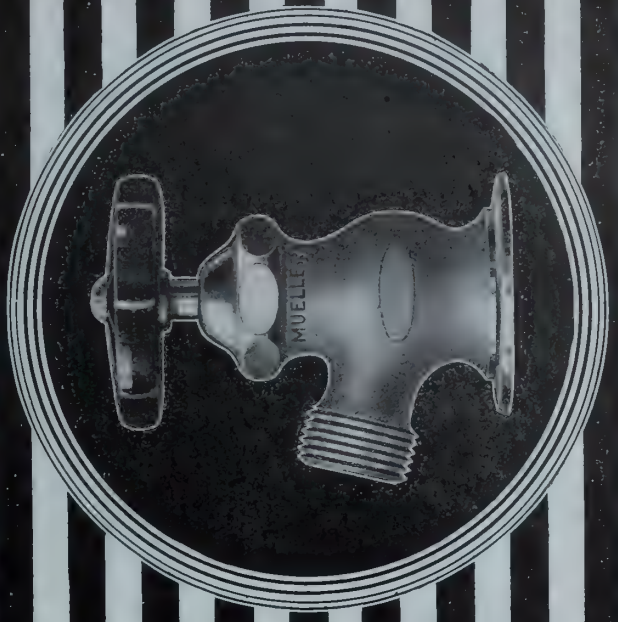
SOLDER.—Prices on solder have been revised and it is now being quoted in case lots of 100 pounds at 43 cents per pound, and in less quantities at 44 cents per pound and tinker's at 52 cents.

Carborundum Grinding Compound Advances

Winnipeg.

CARBORUNDUM GRINDING COMPOUND.—A slight advance went into effect on this commodity this week, and it is now quoted as follows: Duplex, cans, $5 25 doz.; medium or coarse, 1 lbs., $1.15 lb.





MUELLER Stop Cocks, Sill Cocks and Basin Cocks

The wide range of design, the uniform quality and the tested worth of each article make it a pleasure for plumbers to sell and install *MUELLER* goods. The precision with which every thread and joint is finished insures satisfaction to the user and saves time for the plumber. See A-1240, A-1245, A-1513 and A-1517.

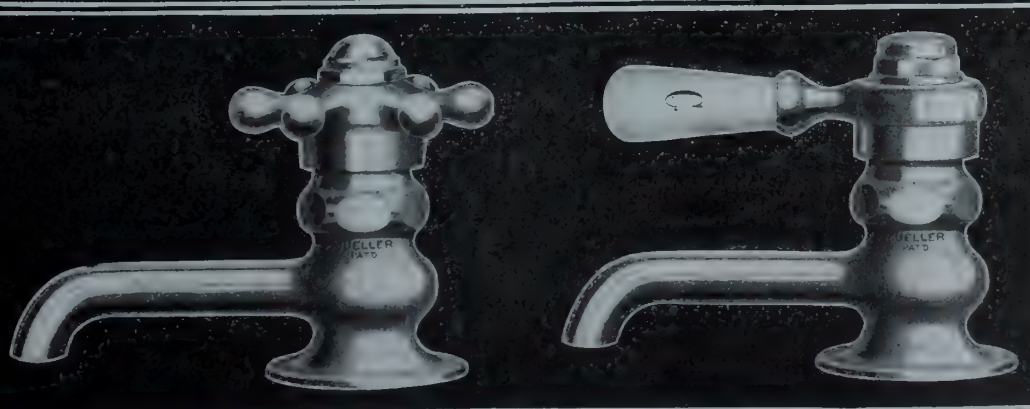
Write for catalog and prices. Mail orders given immediate attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.



Large Advance on Steel Clad Baths

Winnipeg.

STEEL CLAD BATHS.—There has been a sharp advance of approximately fifty per cent. on steel clad baths due to the rapid increase in the price of raw materials and they are now quoted as follows: 5½ foot, $17.50.

Latest Prices on Oleite Packing

Winnipeg.

OLEITE PACKING.—This is being offered to the trade at the following prices: 1-16th inch, $1.25 per lb.; 1-8th inch, $1.25 per lb.

Pipe Vises Up Fifteen Per Cent.

Winnipeg.

PIPE VISES.—Armstrong pipe vises have been advanced about fifteen per cent. This is said to be due to the increase in the metal market and they are now quoted as follows: No. 0, $4.75; 1, $5.60; 2, $8.40; 3, $12.25.

Pipe Unchanged But Hard to Procure

Winnipeg.

PIPE.—There has been no change announced in pipe prices, but iron and steel, black and galvanized, are alike scarce and short on the market, and deliveries very uncertain. Latest prices are as follows:

BLACK PIPE
f.o.b.

Size ins.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat. Add to Winnipeg price	Saskatoon Add to Winnipeg price	Regina Add to Winnipeg price	Brandon Add to Winnipeg price
⅛	$ 6.17	$ .25	$ .16	$ .14	$ .09
¼	5.76	.43	.28	.24	.15
⅜	5.90	.57	.37	.31	.20
½	7.88	.85	.55	.47	.30
¾	9.77	1.14	.73	.62	.40
1	14.40	1.68	1.09	.92	.59
1¼	19.53	2.29	1.46	1.24	.79
1½	23.40	2.73	1.75	1.48	.94
2	31.50	3.68	2.35	1.99	1.27
2½	50.94	5.82	3.73	3.16	2.01
3	66.60	7.62	4.90	4.15	2.64
3½	84.60	9.20	5.85	4.95	3.15
4	99.90	10.89	6.93	5.87	3.74
4½	119.25	12.64	8.12	6.87	4.38
5	139.05	14.81	9.43	7.98	5.08
6	180.00	19.19	12.20	10.32	6.57
7	263.70	23.77	15.13	12.80	8.15
8L	277.20	25.00	16.25	13.75	8.75
9	382.50	34.19	21.91	18.54	11.80
10L	354.60	32.00	20.80	17.60	11.20

Galvanized Pipe

Size Ins.					
⅛	$ 8.64	$ 0.25	$ 0.16	$ 0.14	$ 0.09
¼	8.10	.43	.28	.24	.15
⅜	8.24	.57	.37	.31	.20
½	9.50	.85	.55	.47	.30
¾	12.06	1.14	.73	.62	.40
1	17.82	1.68	1.09	.92	.59
1¼	24.12	2.29	1.46	1.24	.79
1½	28.80	2.73	1.75	1.48	.94
2	38.84	3.68	2.35	1.99	1.27
2½	63.00	5.82	3.73	3.16	2.01
3	82.80	7.62	4.90	4.15	2.64
3½	103.50	9.20	5.85	4.95	3.15
4	122.40	10.89	6.93	5.87	3.74
4½	146.70	12.64	8.12	6.87	4.38
5	171.00	14.81	9.43	7.98	5.08
6	222.30	19.19	12.20	10.32	6.57
7		23.77	15.13	12.80	8.15
8		25.00	16.25	13.75	8.75

Wholesale

Terms in all cases 2 per cent. 30 days, or net 30 days, or net 60 days.

Black and Galvanized Sheets Firm and Scarce

Winnipeg.

BLACK AND GALVANIZED SHEETS.—No change is noted in the sheet market and both black and galvanized are very scarce and hard to obtain. Prices on both these commodities are nominal and are as follows:

BLACK SHEETS—

10 gauge	10 00
12 gauge	10 00
14 gauge	10 00
16 gauge	10 35
18-20 gauge	10 40
22-24 gauge	10 45
26 gauge	10 50
28 gauge	10 50

GALVANIZED SHEETS—

10¾ gauge	13 75
28 gauge	13 35
26 gauge	12 80
24 gauge	12 65
22 gauge	12 65
20 gauge	12 50
18 gauge	12 50
16 gauge	12 35

NOTE.—These prices are for full bundles, an extra charge of .... per 100 lbs. is made for broken lots.

Ten Per Cent. Advance on Enamel Ware Prices

Winnipeg.

ENAMEL WARE—The factories have served notice to all jobbers advising them that all future orders after Sept. 1 will cost ten per cent. more at the factory. There is a good trade being done in this line at the present time and prices on goods in stock have not changed as yet.

Malleable Fittings Are Greatly in Demand

Winnipeg.

MALLEABLE FITTINGS. — There is a very large demand for malleable fittings at the present time and jobbers' stocks are only in a fair condition. Certain sizes seem awfully hard to procure and prices are very firm. Quotations are as follows:

PIPE FITTINGS

Cast iron fittings	Plus 20%
Plugs	Net List
Bushings	Net List
Nnions, ¼-in. to 2½-in.	25% adv.
Do., ⅛-in. to 3-in. and larger	25% adv.
Dart unions, ¼-in. to 2-in.	15%
Do., 2½-in. and larger	5%
Nipples, up to 4 in.	45%
Do., 4½ in. and larger	33 1/3%
Couplings, 4 in. and under	10%

Steel Sheets Still Scarce

Little Encouragement Regarding Early Supplies Sheets from Mills—Lower Prices Out of the Question, Says Montreal Manufacturer.

"THERE is no iron coming into the country. Prices are out of reach and there are no deliveries," said W. E. Ramsay, Vice-President of the Pedlar People Limited, Montreal, in discussing the sheet iron outlook with Sanitary Engineer.

Mr. Ramsay expected that there would have been considerable improvement in the outlook by this time. There is much business in sight, far more, in fact than can be taken care of.

"There is a lull in the automobile manufacturing industry in the United States," continued Mr. Ramsay, "and this has released quantities of steel sheets used in that trade. But these sheets are of unusual gauge and size and are only useful to auto manufacturers who may want them in this country; they will not help the regular trade."

"There will be a great rush in about six weeks, when people find that winter is upon us. They will then want supplies in a hurry but they will not be able to get them."

No Low Prices

"Lower prices will not come," continued Mr. Ramsay. "Many people are looking for reduced prices but they will not get them. There is under-production in the United States and in England. Men are not working as they might. From mine to finishing mill there is not any more than 25 per cent. production, and as a consequence there will be a continued shortage of sheets.

"The increase in freight rates will not help matters any and there certainly will be no easing of the price basis. Manufacturers feel that prices, at the same time, are high enough, and at present there will be no advances. But under these conditions there is no possibility of improvement in any respect."

Mr. Ramsay indicated that, as sheets are required for many various kinds of work, eavestrough and conductor pipe, steel siding and shingles and all articles made of this material will be increasingly scarce and prices on all of them will naturally remain firm.

GETS NEW SCHOOL CONTRACT

Merritt, B.C.—The Provincial Government has awarded the contract for the building of the new school building or school extension building in this city to Philip McLean.

The contract figure is $33,175, and Mr. McLean, on being interviewed, says that his tender for that amount expressly excluded the heating and plumbing.

Kingston.—On Sept. 5 daylight saving, which has been in effect in Kingston since May 1st, ceased for the year and the city reverted to standard time.

TRADE MARK J.M.T. REGISTERED A GUARANTEE OF QUALITY

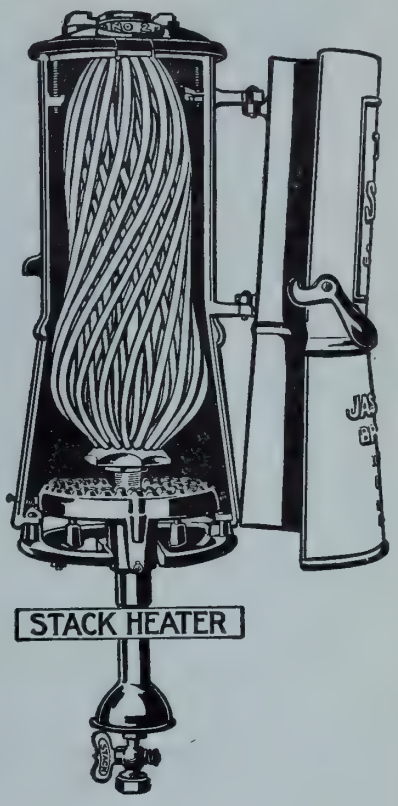
Will Heat Water Faster With Less Gas

STACK HEATER

The Stack Hot Water Heater will heat water in one minute, and with less gas. These are the strong points which make easy selling for the Stack Heater.

When your customers see how the water passes into the numerous small pipes exposed to the hot gas flame, they understand. It requires no technical knowledge to see that the water will heat faster in the numerous small pipes than in one large coil.

Send for Stack Heater Display Card



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Westco
Tankless Water System

A New Field for Profit

THE need for such a water system as the Westco is urgent in rural and suburban homes to-day. Wherever introduced it is selling rapidly. For its many interesting and splendid features make instant appeal to the farmer or rural resident who has electricity available.

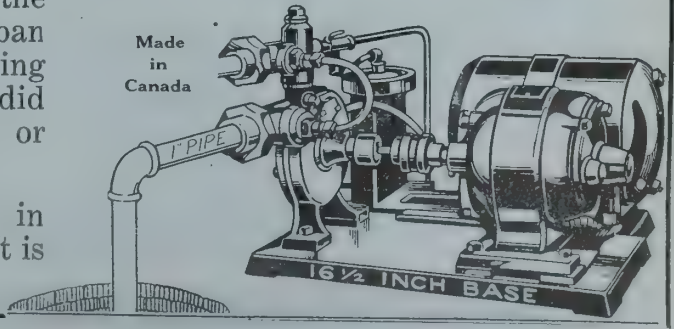
Get even one Westco System installed in your territory, and it will sell many others. It is a small, compact system, yet absolutely efficient in every detail.

Its chief selling features are—

(a) It has no supply tank.
(b) Simplicity of construction; no complications possible.
(c) Pump has only one moving part—the impeller. Nothing to wear out.
(d) Cheap to install, maintain and operate.
(e) Entirely automatic.
(f) Has no tank, no valves, no gears, no belts, no springs, no oil or grease cups, and it is self-lubricating.
(g) Uses less power than Electric Iron while supplying water for four faucets.
(h) Pumps 300 to 500 gallons per hour.
(i) Size 16½" long, 14½" wide, and 11" high, weighs less than 100 pounds.
(j) Opening of any faucet starts pump; closing of faucet stops it at once.

If your territory is still open, write us at once for full particulars and details of this splendid selling water system.

Westco Pumps, Limited
770 Yonge St., Toronto., Ont



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possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.

They insure the best of service, and stamp any job on which they are used as well equipped.

Use Kerr Valves. They give character to your work.

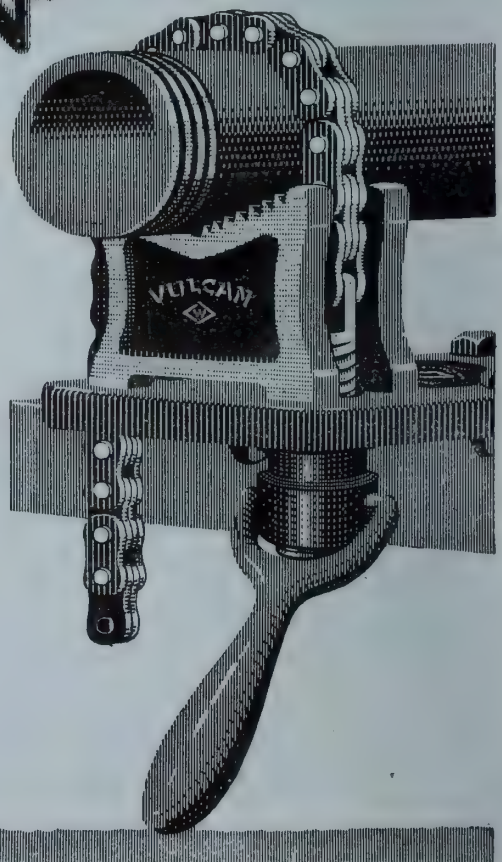
Catalogue No. 5 on application.

THE KERR ENGINE COMPANY, LIMITED

Valve Manufacturers

WALKERVILLE, ONTARIO

WILLIAMS' "VULCAN" DROP-FORGED CHAIN PIPE VISE



IN general, you know there's no comparison between a cast and a wrought tool.

The same principle applies to pipe vises.

Williams' "Vulcan" No. 4, for ⅜ to 8 in. pipe, is stronger, quicker in action and cheaper.

3 sizes for ⅛ to 8 in. pipe—at your dealer's.

J. H. WILLIAMS & CO.

"The Drop-Forging People"

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Borden Canadian Co., Toronto.
Greenfield Tap & Die Corporation, Greenfield, Mass.
John Hall & Sons, Ltd., Brantford.
A. B. Jardine & Co., Hespeler.

PIPE WRENCHES
Borden Canadian Co., Toronto.
Trimont Mfg. Co., Roxbury, Mass.
J. H. Williams Co., Brooklyn, New York.

PLUMBERS' TOOLS
J. H. Williams & Co., Montreal, Que.

PNEUMATIC WATER SUPPLY TANKS
The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.
Wm. B. Scaife & Sons Co., Oakmont, Pa

PORCELAIN WARE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
R. MacDougall & Co., Ltd., Galt.

PUMPS
The Westco Pumps Limited, Toronto.

PUMPING SYSTEMS, AUTOMATIC
The Westco Pumps Limited, Toronto.

RADIATOR FOOT RESTS
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR TRAPS (STEAM)
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

RANGE BOILERS
The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

ROOF FLANGES AND FLASHINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.

SEPTIC TANK VALVES AND SYPHONS
Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SOCKETS, WIRE ROPE
J. H. Williams & Co., Montreal, Que.

SOLDER
Canada Metal Co., Ltd., Toronto.
Hoyt Metal Co., Toronto.

STEAM SPECIALTIES
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
James Morrison Brass Mfg. Co., Toronto.

STEAM TRAPS
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STOVES
Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL
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SMOKE TEST MACHINES
James Morrison Brass Mfg. Co., Toronto.

SWIVELS, HOOK
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TANKS, STEEL
The Canadian John Wood Mfg. Co., Toronto.

TESTING PLUGS
James Morrison Brass Mfg. Co., Toronto.

THUMB SCREWS AND NUTS
J. H. Williams & Co., Brooklyn, N.Y.

TOOLS
Wolverine Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
Williams, J. H., & Co., Brooklyn, N.Y.

UNIONS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

VAPOR HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

VISES, CHAIN, CLAMP, MOUNT
J. H. Williams & Co., Brooklyn, N.Y.

VITRO TANKS
Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING
C. A. Dunham Co., Ltd., Toronto.

VALVES
Empire Mfg. Co., Ltd., London, Ont.
R. McDougall Co., Ltd., Galt, Ont.
Jas. Morrison Brass Mfg. Co., Ltd., Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Ltd., Walkerville, Ont.

WATER SUPPLY SYSTEMS
The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.
The Westco Pumps Limited, Toronto.

WASHING MACHINES
Gurney Foundry Co., Limited, Toronto.

WRENCHES, SETS, DROP FORGED, ENGINEERS, SOCKET AND CHAIN PIPE
J. H. Williams & Co., Brooklyn, N.Y.

How to Test Advertising

THE man who doubts the power of advertising belongs in the same class with the man who refuses to believe that the world is round simply because he can't get off somewhere at a distance and see its roundness for himself.

The merchant who fears to attempt advertising because he figures it as an "expense" is blind to his own interests. I personally know several men who, because they once tried advertising to the extent of a cheaply printed hand-bill and didn't find it necessary next morning to call on the police to keep the crowds of eager buyers from swamping their store, loudly and solemnly aver that "advertising doesn't pay."

Advertising *does* pay.

The most successful merchants are the merchants who believe most thoroughly in advertising and who practice their belief.

But advertising, in order to pay, has got to be *intelligent* advertising.

The day of hashed-over superlatives — "best goods," "lowest prices," "best stock in town," "greatest bargains ever heard of," and so on—has passed.

People have learned to distinguish the *truthful* advertiser from the blatant behind-the-times storekeeper who believes that, so long as *he* claims to have the best goods on earth, or under the earth, or within wireless distance of the earth, people will break their necks trying to get to his counters in the forefront of the crowd.

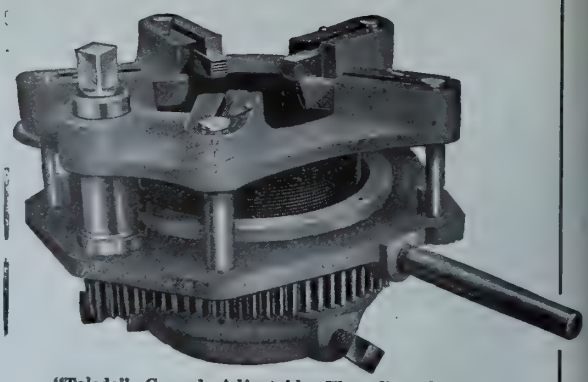
Put some *brains* into your advertising.

Don't let the office boy write your announcements in between his other duties.

Don't doubt the business-getting and business-building power of intelligent and informative publicity — and you will find that advertising *does* pay.

—*Jerome P. Fleishman.*

JARDINE and TOLEDO PIPE THREADING TOOLS



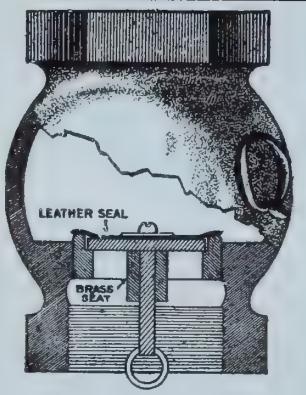
"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2½ to 6 in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or jim cracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

SEND FOR CATALOGUE

A. B. JARDINE & COMPANY, Ltd., HESPELER, ONT.

Sole makers of "Jardine" Pipe-Threading Tools.
Sole licensees to manufacture and sell Toledo Pipe-Threading Tools in Canada.
Agents, Winnipeg and West—Stanley Brock, Ltd., Winnipeg, Man.
Brockville and East—J. R. Devereux, 358 Beaver Hall Square, Montreal.
Belleville and West—W. H. Cunningham & Co., 183 Church St., Toronto, Ont.



This is a "Q" Foot Valve

And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

R. McDOUGALL CO., LTD.
GALT, CANADA

Extended Surface **Special Tapping**

M. & T. COILS

are specially designed to heat water with less fuel. They are not merely cored castings; note the extended heating surface and its capacity for heat absorption; examine the special tappings. M. & T. are the most efficient coils obtainable—the kind you want.

McIntyre & Taylor Limited

MONTREAL	TORONTO	WINNIPEG
55 St. Francis-Xavier St.	501-3 Queen St. W.	156 Lombard St.

Pipe Fittings

Made in Canada

The Brand that has the Quality

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

CAST IRON FITTINGS
With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS
With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads.

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

B. & C.
Combination Cold Rolled Steel Floor and Ceiling Plates

No. 15

No. 16

No. 17

Handsomely Nickel-plated or Plain

Ask your Jobber

Send for catalogue of complete line of B. & C. Goods

Stock now carried by our Canadian Representative

W. H. CUNNINGHAM & CO., 183 Church St., Toronto, Can.
THE BEATON & CORBIN MFG. COMPANY
Southington, Conn., U.S.A.

When writing to advertisers kindly mention Sanitary Engineer.

Wolverine Plumbing Fixtures

Wolverine Ball Flush Valves and Dale Ball Cocks are a tank combination that cannot be beaten, all our ball cocks are fitted with our patented removable porcelain seat and we furnish a 10 oz. solderless copper float. Our ball flush valve is fitted with Wolverine Sure Seat Tank Ball, all of which are Canadian made for Canadian trade. Send your enquiries to

WOLVERINE
LIMITED
12 Mercer St.
TORONTO
Ont.

Porcelain Products

Limited

Successors to Imperial Products

34 Adelaide St. W., Toronto

Specialties

Sloan Flushometer Valves

Weisteel Compartments

Whale-bone-ite Seats

Brass Goods

Importers of High-Grade Porcelain Goods of all Descriptions

Estimates

for

Houses

Schools

Hospitals

Factories furnished

Write for Prices

SHEET LEAD
CALKING LEAD

LEAD PIPE
WIPING SOLDER

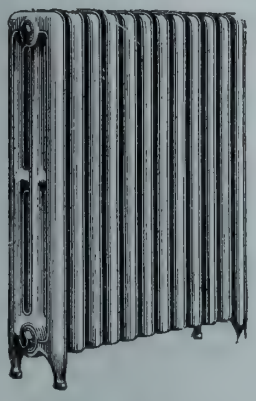
LEAD TRAPS
LEAD BENDS

LARGEST MAKERS OF WHITE METALS IN THE WORLD

HOYT METAL COMPANY

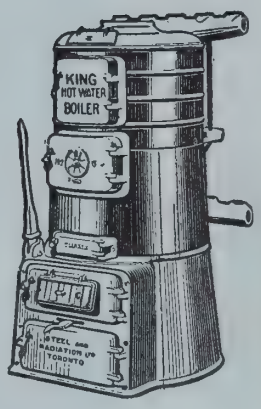
MONTREAL TORONTO WINNIPEG

Turn Every Customer Into a Salesman



When your customers want a Hot Water Boiler and Radiators, give them the

KING HOT WATER BOILERS AND IMPERIAL RADIATORS



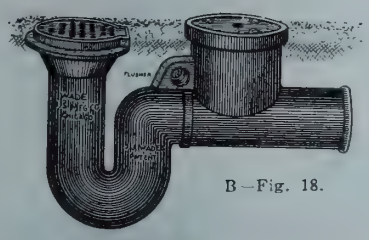
You will make them praise the efficiency of your work, and nothing could possibly do more to help your business.

STEEL AND RADIATION, LIMITED

Manufacturers of Hot Water *and* Steam Boilers *and* Radiators; Fenestra Steel Sash *and* Concrete Reinforcing

Head Office: Fraser Ave., Toronto **Sales Offices : Montreal, Toronto, Quebec**

A complete stock of all lines is carried at our Montreal warehouse.
Western Agents: The J. H. Ashdown Hardware Co., Ltd., Winnipeg



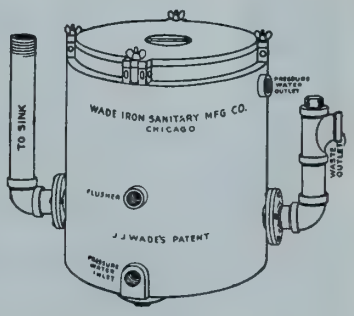
B—Fig. 18.

Wade Accessible Clean-out Drain Flushing Cesspool Back Water Gate Trap—Valve Combination.

Plan on Installing WADE Up to date FITTINGS in 1920

WADE Back Water Gate Valves and House Drainage, Sewer Flushing Fittings embody the latest improvements in design and construction.

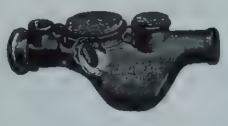
They are approved by sanitary engineers and comply with health ordinances.



B—Fig. 27.
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

Wade Iron Sanitary Manufacturing Co. 551 W. Fulton St CHICAGO

B—Fig. 126.
Wade accessible flushing cleanout floor wash and backwater valve combination.



B—Fig. 13.

Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.

Send for Catalogue

B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

Wrought Pipe

The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

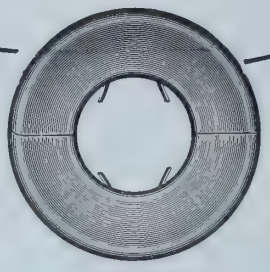
by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Iron Co. Limited
Montreal

OPEN VIEW
NO. 10-A

The CEILING PLATE that's better



TOP VIEW
NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾" WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

Gem No. 4.

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.

Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.
New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 353 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

TRIMO

The four good points that make TRIMO PIPE WRENCHES superior are the SPIRAL SPRING always in place, STEEL FRAMES that will not break, NUT GUARDS that protect adjustment nut and the INSERTED JAW in handle that can be replaced when worn.

The Trimo Steel Handle Pipe Wrench is also made in the 6", 8" and 10" size with narrow jaws and fine milled teeth, especially adapted for close work.

Your Jobber can Supply

Trimont Mfg. Company
Roxbury (Boston) Mass., U.S.A.

Extending the Uses of Your Product by Informing Dealers

When the efficient, modern advertiser finds his reputation firmly established, the confidence of the trade firmly held, distribution ideal and his product and trade-mark thoroughly familiar, he directs the full force of his continuous advertising toward increasing the uses of his product by showing the dealer and his salesmen each week new uses for his goods that both stimulate sales and increase the consumer satisfaction with the product.

A message to the whole plumbing trade of Canada through Sanitary Engineer is productive, profitable and reliable "business insurance" for the future.

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It's Just Common Sense!

MANY a man will put a wise look on his face and say, "You *can't get something for nothing in this world.*"

Then, like as not, he'll turn around and try to buy something as good as "X" Boiler Liquid —for less money!

Isn't it too bad that his wisdom doesn't go *far* enough?

Wouldn't you think he'd know that any amount spent on an article that *didn't make good*—is money wasted?

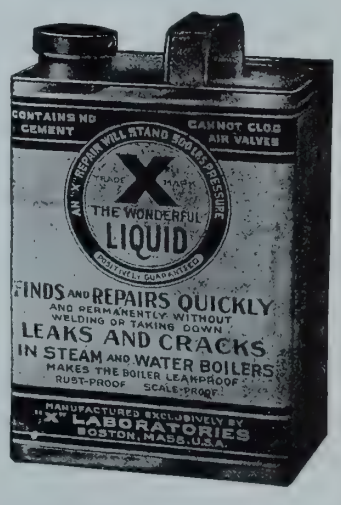
"X" maintains its DOMINATING position as the biggest selling Boiler Liquid not because it is the original—but because it does its work *right.* It has done over $3,000,000 in repair work—for over 28,000 plumbers and steamfitters.

"X" Liquid makes a permanent repair. It is a scientific process for keeping boilers—and entire hot water heating systems—LEAKPROOF — RUSTPROOF — and SCALEPROOF. By eliminating and preventing Rust and Scale "X" keeps the boiler more efficient and *saves coal.*

One can will do a $200 repair job in 30 minutes; and make a repair that stands 2,000 *pounds pressure.*

Imitations of the genuine "X" Liquid *cause foaming.* "X" Liquid *prevents foaming.*

Stick to the genuine. The big "X" is plainly marked on every can. It is there for your protection. Ask for "X" Boiler Liquid by name.


CONTAINS NO CEMENT
CANNOT CLOG AIR VALVES
X
THE WONDERFUL LIQUID
FINDS AND REPAIRS QUICKLY
AND PERMANENTLY WITHOUT WELDING OR TAKING DOWN
LEAKS AND CRACKS
IN STEAM AND WATER BOILERS
MAKES THE BOILER LEAKPROOF
RUST-PROOF SCALE-PROOF
MANUFACTURED EXCLUSIVELY BY "X" LABORATORIES BOSTON, MASS. U.S.A.

The United States Government uses "X" Liquid. It is used and recommended by 99 out of every 100 manufacturers of boilers and radiators. *Your* jobber sells it.

Get It To-day. Be sure to get the original.

"X" LABORATORIES

25 W. 45th St., New York City

Business Protection

Allpriser Service

Allpriser Service offers sound business protection. Protection against costly mistakes. Don't trust to luck or memory, trust Allpriser.
Allpriser Service consists of a flexible leather bound book 7 x 9, of 150 loose-leaf pages.
The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest changes. Allpriser Service is only $25.00 annually.

Kenneth B. Allison **668 Yonge Street, Toronto**

Toronto Hardware Manufacturing Co., Limited

Recommend Riveted Range Boilers, the kind that stands the test of time, not the flashy kind that appears good for the first year or two and then gives out.

Chas. F. Hause Mfg. Co., Ltd.
Manufacturers
Iron Pipe Joint Cement
SETS LIKE GUM
ALLOWS NO LEAKS

Liquid and Powder Form.
Packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans; 100 and 250-lb. barrels. Ask your jobber for prices or write us direct.
Made in Omaha, Neb., U.S.A.
Canadian Distributors:
EMPIRE MANUFACTURING CO., LIMITED
LONDON AND TORONTO

CRANE FITTINGS

CRANE
LIMITED
HEAD OFFICE & WORKS
1280 ST. PATRICK ST
MONTREAL
Branches: Toronto, Winnipeg, Vancouver.
Sales Offices: Halifax, Quebec, Ottawa, Calgary.

FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

SE-MENT-OL
Guaranteed to Repair Leaks in Boilers and Heating Systems
Qts.-$4.00 Gal. $14.00
THE NORTHWESTERN CHEMICAL CO.
Marietta, Ohio and Montreal, Canada

WE CARRY A FULL LINE OF
BOILERS, RADIATORS, WARM AIR FURNACES AND REGISTERS
HAMILTON STOVE AND HEATER COMPANY, LIMITED, HAMILTON, CANADA

ANTHES FOUNDRY LIMITED

TORONTO WINNIPEG

BUGS
EAT
SEWAGE

Our Bulletin No. 2 tells all about it.

Write for one.

Get after Rural Installations before the snow flies.

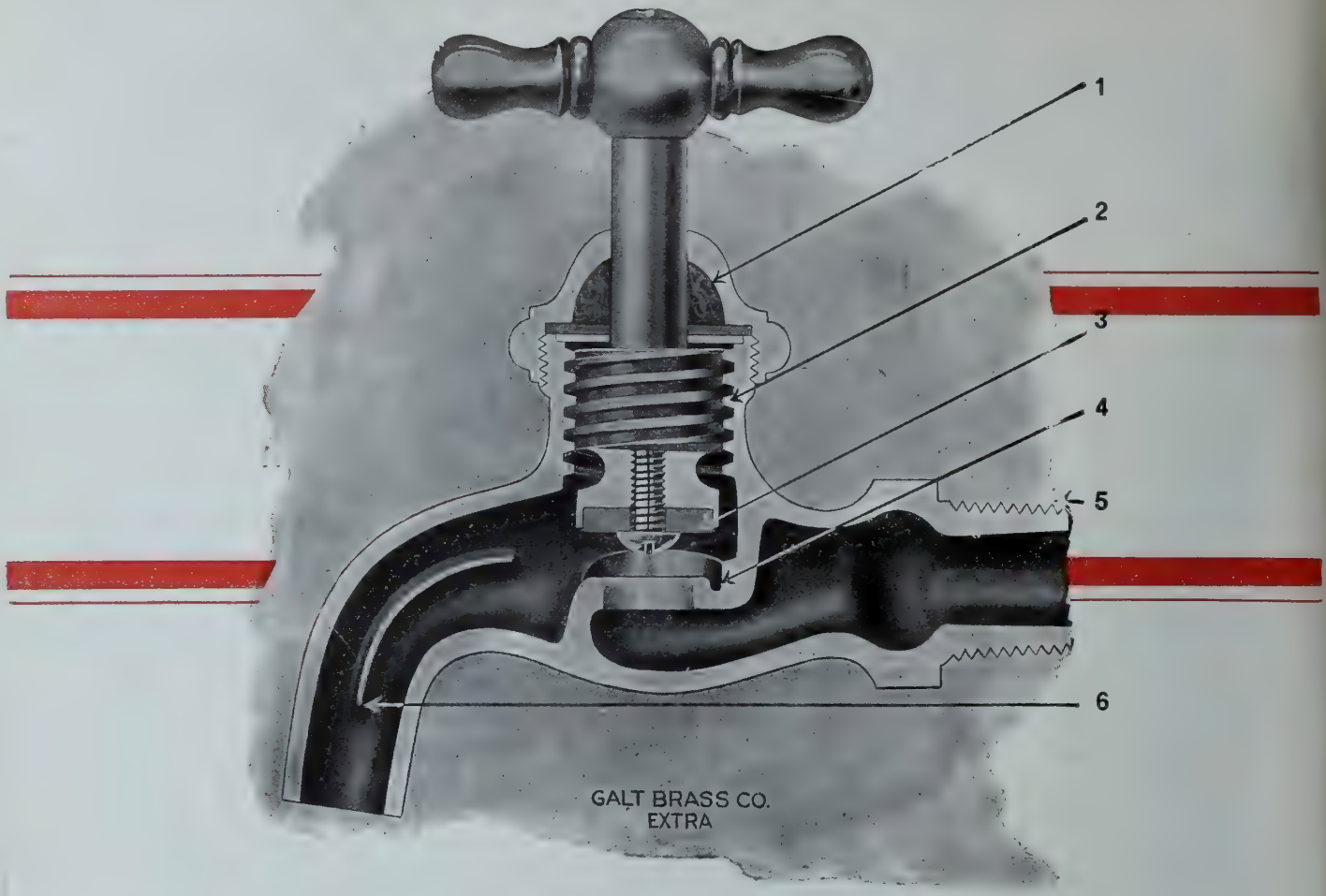
ANTHES FOUNDRY, LIMITED

MANUFACTURERS

Soil Pipe and Soil Pipe Fittings

JEFFERSON AVE.
TORONTO

SASKATCHEWAN AVE.
WINNIPEG



PERFECTO BRASS GOODS

The Assurance of a Better Service

PERFECTO Brass Goods are sure to give longer wear and less trouble than other kinds, because they are made from the finest of metals, by skilled mechanics who have the reputation of their firm at heart.

Every article bearing the name PerfectO is as nearly perfect as human ingenuity, scientifically governed, can make it. Every thread is accurately machined—our special gauge process absolutely prevents errors.

This mean that PerfectO Fixtures are easily installed and easily replaced—the threads are uniform.

For the satisfaction of your customers insist on putting in PerfectO Brass Goods. It will pay you in the long run.

Special PERFECTO Features

1—Conical Packing
2—Four Full Threads
3—Encased Washers
4—Raised Seat
5—16 oz. Red. Metal
6—Anti-Splasher

GALT BRASS COMPANY, LIMITED

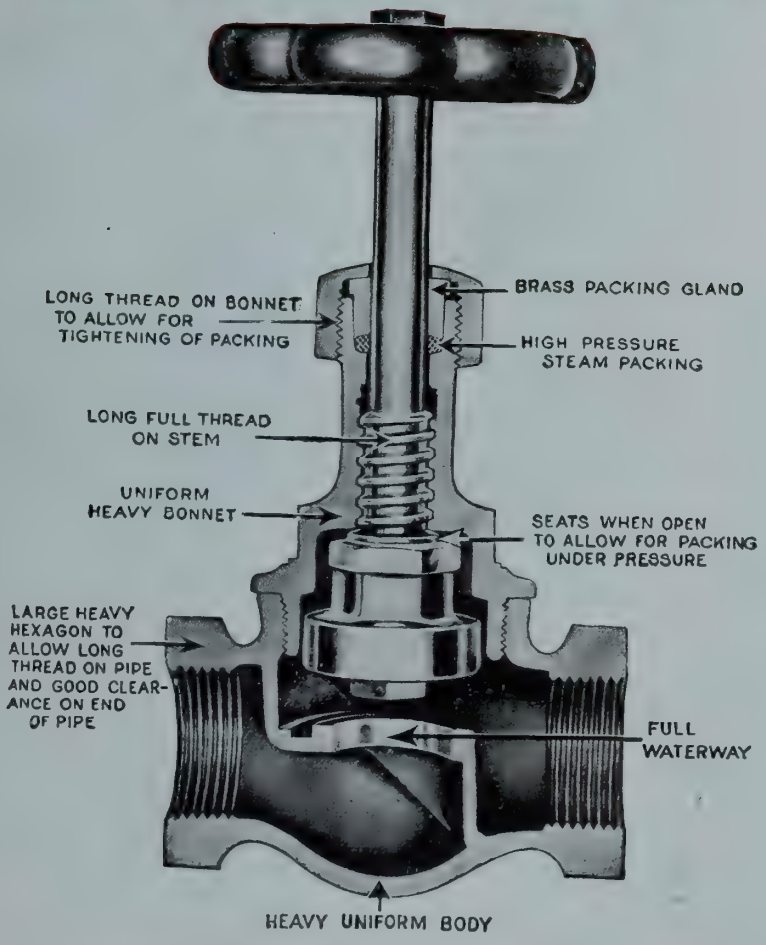
GALT - CANADA

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, OCTOBER 1, 1920 No. 19

"EMCO"
The Master Valve


LONG THREAD ON BONNET TO ALLOW FOR TIGHTENING OF PACKING
BRASS PACKING GLAND
HIGH PRESSURE STEAM PACKING
LONG FULL THREAD ON STEM
UNIFORM HEAVY BONNET
SEATS WHEN OPEN TO ALLOW FOR PACKING UNDER PRESSURE
LARGE HEAVY HEXAGON TO ALLOW LONG THREAD ON PIPE AND GOOD CLEARANCE ON END OF PIPE
FULL WATERWAY
HEAVY UNIFORM BODY

This **"Emco"** Composition Disc Valve No. A-840 has been approved and registered by inspectors of steam boilers for a pressure of 175 pounds, in the following provinces:

Globe Valve A-840, British Columbia No. 2590—Alberta No. 1102—Saskatchewan No. 2365—Ontario No. 1755. Each valve is hydraulic tested before being shipped.

Specify Empire goods when buying. Complete line of plumbing supplies and sanitary fixtures.

EMPIRE BRASS MANUFACTURING CO., LTD.

LONDON and TORONTO, CANADA

"If it's an Empire Product you know it's right"

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

Amherst Foundry Co., Limited

General Offices and Factory: Amherst, Nova Scotia

AGENCIES:

ONTARIO:
Monarch Brass Mfg. Co., 71 Brown St., Toronto

MANITOBA and NORTHWEST:
E. B. Plewes, 120 Lombard St., Winnipeg

SANITARY ENGINEER, October 1, 1920, Vol. XIV., No. 19. Published 1st and 15th of every month at 143-153 University Avenue, Toronto, by the MacLean Publishing Co., Ltd. Yearly subscription price, Canada, $2.00; United States, $2.50; Great Britain and the Colonies, 9s. 0d.; elsewhere $3.00. Entered as second-class matter at the Post Office, Ottawa. Entered as second-class matter July 1st, 1912, at the Post Office at Buffalo under the Act of March 3rd, 1879.

TINKER TOM'S TALKS.

No. 279

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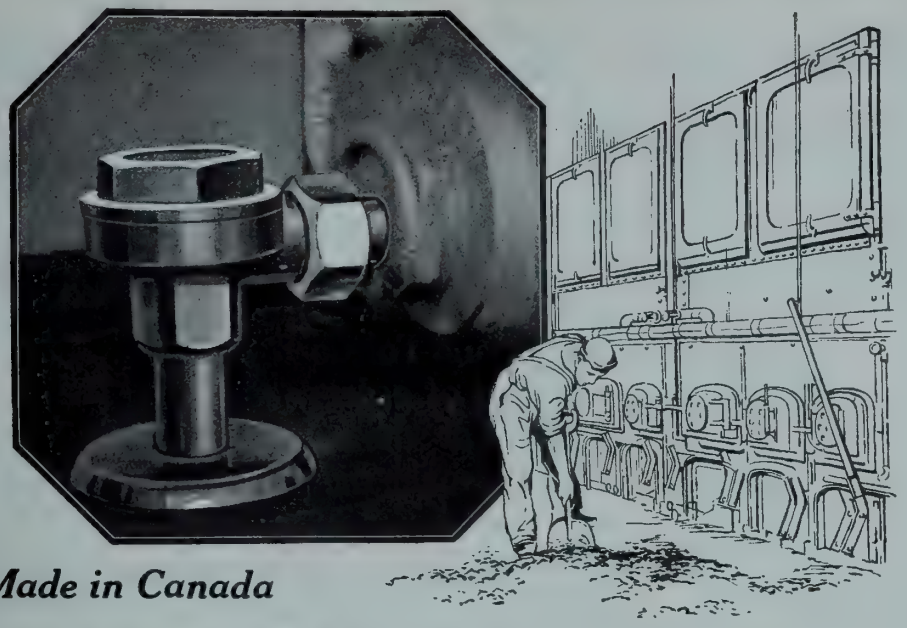

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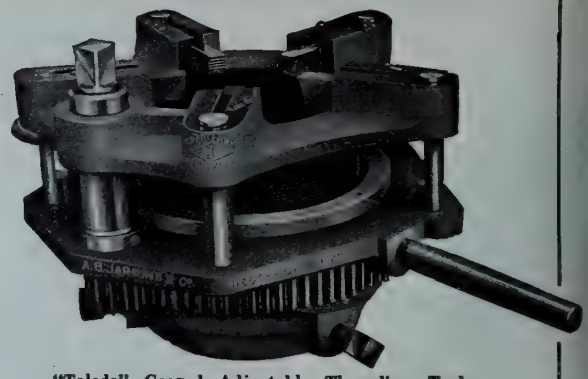

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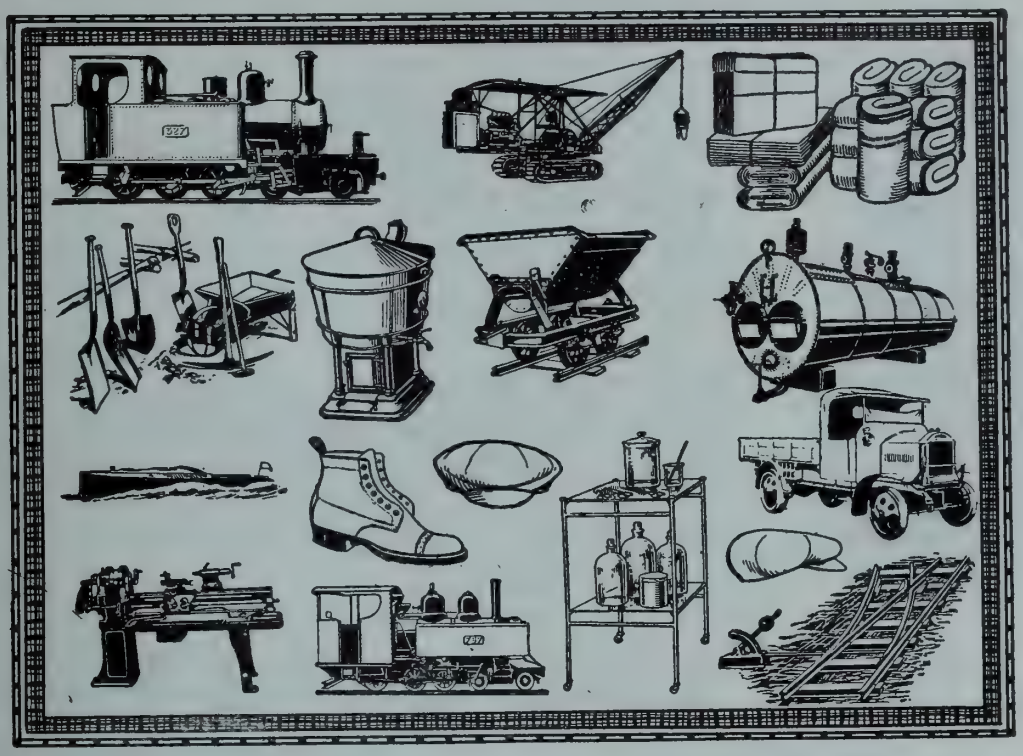

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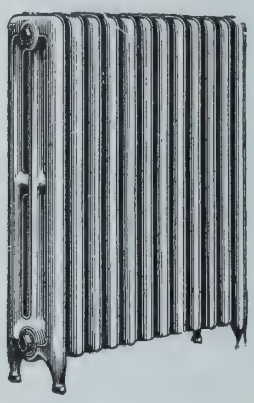

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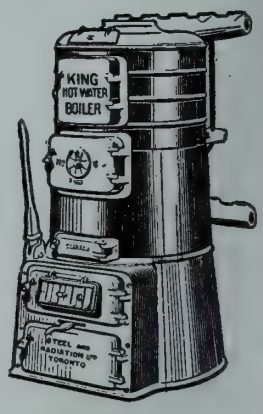

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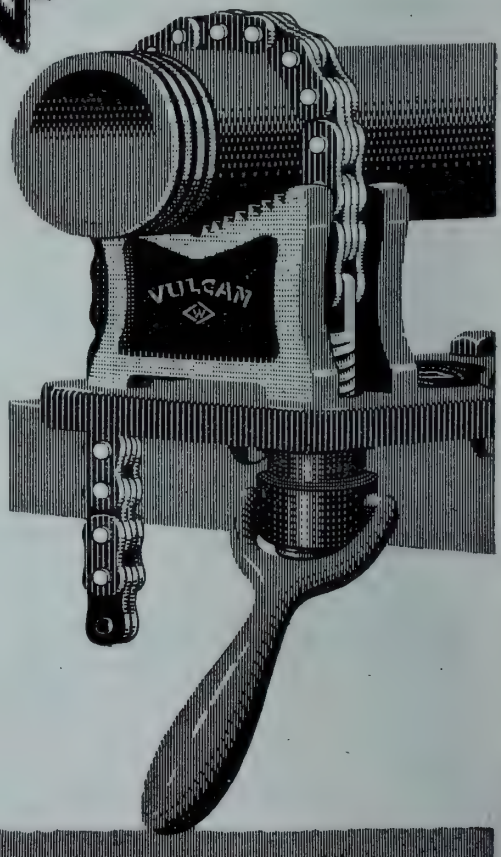

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"MADE IN CANADA"

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XIV. TORONTO, OCTOBER 1, 1920 No. 19

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About 2.30 one morning, Forbes, the fitter, received a call from the engineer at St. Luke's Hospital. Something had gone wrong with the big drum sterilizer. Important operations were to take place later in the day. It **must** be fixed before six o'clock.

Arriving at the hospital, Forbes found a leak in the feed pipe between the partitions, which kept the hot water from getting to the sterilizer. Ordinarily, the wall would have to be chipped away to fix a leak like this. But to Forbes it was a simple job. He merely poured

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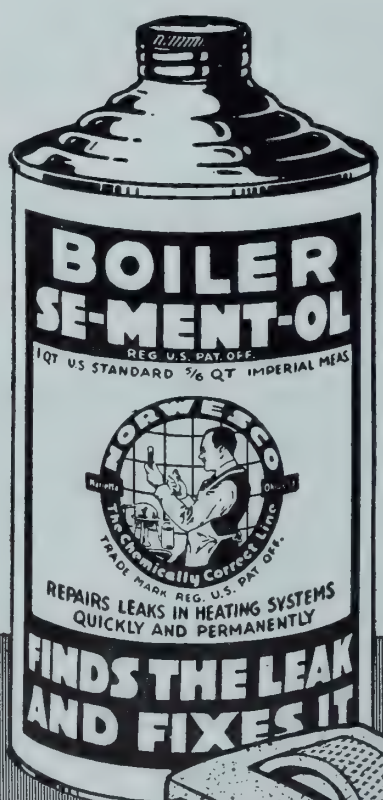
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Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO, OCTOBER 1, 1920 No. 19

Form "Canadian Sanitary Association"

New Organization, Dominion-Wide, is Formed from Former Inspectors' Association of Western Canada—New Organization Will Further the Interests of Inspectors Throughout Canada—Interesting Convention Held in Edmonton.

THE most important development at the recent convention of the Sanitary Inspectors' Association of Western Canada held in Edmonton, Alta., was the extension of the interests and benefits of this organization to the whole Dominion of Canada. The organization is now named "The Canadian Sanitary Association." It is the hope of the officials to get all the Eastern organizations of inspectors to join with the new organization for the benefit of all concerned. It is realized that a Dominion-wide representation of inspectors will be much stronger in securing required legislation and will be a more potent factor in making their weight felt on all sanitary questions.

A new constitution and by-laws are being framed for the organization and when these are completed the real work of organizing inspectors throughout the whole country will be commenced.

This movement is a further indication of how plumbing inspectors are getting together for their common good and to emphasize the importance of the work on which they are engaged. An Ontario Association of Sanitary Inspectors was formed early this year and movements are on foot in other eastern provinces for a similar organization. Linking these up into one central body representing the Do-

Continued on page 21

NEW OFFICIALS OF INSPECTORS' ASS'N.

The officers of the newly formed Canadian Sanitary Association snapped while in Edmonton attending the recent convention. Left to right: E. C. Brown, president; A. Officer, secretary-treasurer; D. Little, past president. Mr. Brown appears quite happy over his new responsibility. Mr. Officer has been secretary of the organization since it was commenced in 1913 as the Sanitary Inspectors' Association of Western Canada.

DELEGATES TO WESTERN CONVENTION

Herewith are some of the delegates to the annual convention of the Sanitary Inspectors' Association of Western Canada recently held in Edmonton. Left to right they are: J. R. Cooke, sanitary inspector of Westboro, Ont.; D. Alton, market superintendent of Edmonton, Alta.; G. O. S. Laflamme, chief sanitary inspector of Ottawa, Ont. The delegates are admiring the splendid display of vegetables in the city market.

New Process to Revolutionize Manufacture of Iron Piping

Production Increased in Ratio of Five to One by New Process—Much Lighter and Stronger Pipe Produced.

BY obtaining the invention of a Brazilian engineer, Sensaud de Lavaud, a syndicate of Toronto men have secured the rights for the entire world of a new process that will, it is said, revolutionize the manufacture of iron piping. Senor de Lavaud was in Canada conducting a number of experiments when his invention was brought to the notice of Sir Henry Pellatt, Gordon F. Perry, president and general manager of the National Iron Corporation, Limited, and Mark Workman. After thoroughly investigating the process they formed a syndicate and obtained control of the rights.

Mr. Perry states that the process is the greatest step forward in the industry since the commencement of the manufacture of iron piping and already it has resulted in revolutionizing the industry. The National Iron Corporation has been operating the process for eighteen months and it has found that the production has been increased in the ratio of 5 to 1 compared with the previous system of manufacture.

"The new process," states Mr. Perry, "is entirely different from anything previously used and permits the manufacturing of iron piping that is much lighter than that made in the old way, but yet it is very much stronger and the process eliminates all the imperfections common in the ordinary cast iron pipe. As a result of the new system, the number of operations in the manufacturing of piping is reduced from 31 to 4 and this calls for very much less plant and gives greater production."

In Canada the process is controlled by the National Iron Corporation, Limited, and the rights for the British Empire, exclusive of Canada, have been obtained by the Stanton Iron Works, Nottingham, England, which are the largest manufacturers of iron piping in the world. The manufacturers of piping throughout the world have taken it up so that now the process is in general use all over the world. The K. Tsuda Iron and Steel Company of Osaka, Japan, has the rights for Japan, China and Siberia, the Centrifugal Cast Iron Pipe Company of New York for the United States, The Societe Vulcain Cyclone, of Paris, for France, and the South American privileges are controlled by the Empressa de Talleres Metallurgicos of Rio Janeiro.

USING METAL FOR SHIPPING CASES

Montreal.—A dispatch from New York reports that metal will be substituted for making shipping cases now so generally made of wood. This, according to an expert who lectured on the matter in New York recently, would greatly increase the output of newsprint; in fact, he estimated that no less than 4,000,000 tons of an increase in newsprint would be possible through the adoption of this plan. He stated that 6,000,000 cords of wood were turned into shipping cases last year and that as 1½ cords of wood will make a ton of paper suitable for newsprint the above estimate may be made. In other words, the output of newsprint could be just doubled.

It has not been indicated whether general use of metal cases could be made for such lines as are bought by the plumbing and hardware trade.

ANTHES SINK TRAP

A Correction

In the issue of Sanitary Engineer of September 15th, page 22, in describing the Anthes sink trap manufactured by the Anthes Foundry, Ltd., Toronto and Winnipeg, the paragraph stating that "the trap is the only flushing device operating under natural law" was inserted in error, this paragraph refering to the company's sewage syphon system.

The trap is a sink trap for use under kitchen sinks and is a convenient one to use where fixtures have not been vented. It is made of cast iron, aluminum finished, and each trap is packed separately for shipment.

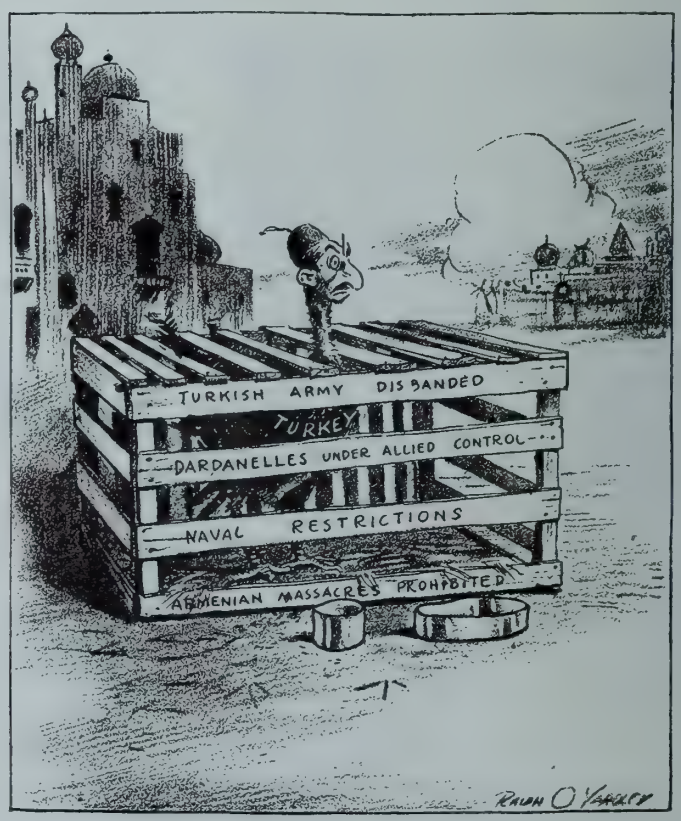
FIGHT TO MAKE CITY AN "OPEN SHOP" TOWN

Detroit.—Twenty-four labor organizations are named in a drastic injunction, rendered by United States Federal Judge Tuttle, in which practically every labor union and labor leader in Detroit is restrained from picketing "or in any way interfering with work being done by members of the Detroit Association of Sanitation and Heating Contractors." The order is the outcome of a long fight to make this city an "open shop" town.

The Detroit Federation of Labor and Detroit Building and Trades Council, together with their affiliated unions, are included in the writ.

PETERBORO' UNDECIDED ABOUT SEWAGE DISPOSAL

Peterborough.—The Board of Works recently decided to wait upon the Provincial Board of Health and endeavor to secure a change in front in regard to the local sewage disposal plant. While it is imperative that the pollution of the Otonabee river should be stopped as soon as possible by the construction of a sewage disposal plant, the citizens want to be satisfied that the best system obtainable is chosen.



Crated in Constantinople!
—Yardley in San Francisco "Bulletin."

Cement Joints for Cast Iron Water Pipe

The Following From the Journal of the American Waterworks Association Will Be of Interest to Many Sanitary Engineers Who Have Work of This Kind

By GEORGE W. PRACY

Superintendent, Spring Valley Water Co., San Francisco, Calif.

TWO sections of 4-in. cast iron pipe, using cement instead of lead in making the joints, were laid in April, 1917, by the Spring Valley Water Co. This was in the nature of an experiment, none of the men ever having made a cement joint before. The line was thoroughly tested for leakage before being put into use and the results were so satisfactory that cement has been used in some 16,000 ft. of 4-in., 5,000 ft. of 6-in. and 16,000 ft. of 8-in. cast iron pipe laid since that time. No larger size mains were laid during or since the war period; had any such been laid, cement would have been used. Over one mile of these lines has been in use more than two years under 175 lb. pressure without requiring any repairs. An 18-in. line is about to be laid in a neighboring town in which cement will be used for making the joints.

The use of cement is pretty general along the Pacific Coast. Clark Shaw of Long Beach describes the use of cement joints in Long Beach, California, in an article printed in the April, 1917, Proceedings of the American Society of Civil Engineers. F. M. Randlett, of the Portland, Oregon, water works, in the 1916 report of the department of public utilities, recommends cement joints for all new work. P. D. Rice, formerly engineer for the San Jose Water Co. and now connected with the Spring Valley Water Co., used cement to a considerable extent in San Jose. The East Bay Water Co. of Oakland, California, the Los Angeles water department, as well as several smaller systems, also have used cement in some of their work.

Making the Joint

In making the cement joint, the spigot end is put into the bell just the same as for a lead joint. Two rings of jute or yarn are then put around the pipe and driven into the bell in the regular manner. The jute used must be free from oil or tar. In some joints the jute was put in dry and in some it was soaked in grout before being used. There was no apparent difference in the results.

When the jute is in place the cement is mixed. Neat cement of standard Portland cement brand is used. The mix is very dry, the proportions being about 13 to 14 lb. of cement to 1 pound of water. This leaves the mixture so dry that it will crumble readily when handled. At no time should the mixture be wet enough to become sticky. The mixing is done in a pan or bucket, enough cement for one joint being mixed at a time. At first the men guessed at the amounts, taking what cement and water they thought was right. Later, measures were used, calibrated to give the amount of cement and water necessary, including waste, for a 4, 6 and 8-in. joint.

When the cement is mixed ready for use, a canvas is placed under the joint to catch the waste. The operator takes a handful of cement and with an ordinary calking iron shoves the cement into the joint until the joint is full. He then takes a calking hammer and calks the joint until the cement is rammed in as hard as possible. The joint is then again filled and the operation repeated until the joint is completely filled with the rammed cement. At first a bead was put around outside the bell, but this was discontinued as being unnecessary. In handling the cement the men must wear gloves. After the joint is finished, it is covered with earth while the cement is hardening.

Amount of Cement Used

In putting the cement into the joints, considerable is lost, even though a canvas be placed to catch it. The amount used in making a joint depends entirely upon the carefulness of the operator. In some careful checks made it was found that from 5½ to 10 lb. of cement were used in making an 8-in. joint. On an average, however, a 4-in. joint will take 5 lb.; a 6-in., 7 lb.; and an 8-in., 9 lb. As cement out here costs less than one cent a pound, the cost for material is not very great and it does not pay to slow up the men by exacting the extreme of carefulness.

Cost of Cement Joints

Careful observation on the cost of lead joints made in laying over 45,000 ft. of pipe in 1915 and of cement joints made in laying the 37,000 ft. during the last three years, has resulted in the following comparative table of costs. The wage scales and material prices have been adjusted to meet present conditions.

	Size of Joints		
Lead Joints:	4-in.	6 in.	8-in.
Labor—Calker at $5.50: leadman at $4.75	$0.527	$0.723	$0.850
Lead—at 9½ cents per pound	.831	1.165	1.495
Coal—at $14 per ton	.015	.025	.026
Total	$1.373	$1.913	$2.371
Cement Joints:			
Labor—$5.50 per 8-hour day	$0.30	$0.44	$0.58
Cement	.05	.07	.09
Total	$0.35	$0.51	$0.67
Saving per cement joint	$1.02	$1.50	$1.70
Saving per foot for 12-ft. lengths	.08½	.12½	.14

The cost of yarn, amounting to a few cents a joint, has not been included, as it is the same in both cases.

Initial Leakage

When water is first turned into the line with cement joints, every joint weeps badly and in some cases the water oozes out quite readily. In a few instances small pin-like streams have squirted out. In 24 hours this has practically all stopped and in two or three days the line is tighter than a line with lead joints.

On some jobs a meter was cut in on a by-pass around a closed gate so that the water to replace the leakage from the line was measured. The meter showed a leakage of 100 cu. ft. or more the first day, dropping to a few cubic feet on the second day and practically nothing thereafter.

Four sections of pipe, about 1,500 ft. long, tested for leakage at the joints after the water had been in the pipe for a week, gave the following results: In the first section the leakage was 1-3 gal. per linear foot of pipe joint per 24 hours. The second section leaked so slowly that the leakage could not be measured. The last two sections were practically tight, the line being pumped to pressure and left standing in one case for ½ hour and in the other case 2½ hours without any drop in the pressure.

Flexibility of Cement Joint

At San Jose a test section of 6-in. pipe was made, somewhat over 70 ft. long, using cement joints. This was first pumped to a pressure of 300 lb. without any leakage through the joints. The line was then put on supports so that it was elevated about 4 ft. off the ground. With a normal working pressure of 60 lb. on the line, all but the two end supports were knocked out, permitting the pipe to be self-supporting over a span of 70 ft. The pipe dropped 2 ft. in the centre without causing any leakage at the joints. The line was then again lowered until it lay flat on the ground, while under normal working pressure; still no leakage. It was then emptied and left empty, exposed to temperature varying from 40 deg. to 110 deg. F. for nearly one year, after which it was again filled and the joints were all found to be tight.

In the first block of pipe laid, containing about 40 joints, 3 joints had to be cut out and remade. Since that time only 2 joints have continued to leak after the water was turned on. Both these joints were repaired by cutting out only that portion of the joint that was leaking and calking in lead wool. The pressure had to be taken off the line while the work was being done. Cutting out the joints

(Continued on page 40)

To Launch "Knowledge Campaign"

Special Service to Be Given Local Associations to Improve Business Knowledge of Plumbers—"Fixed Charges"—"Estimating of Plumbing"—"Estimating Heating"—Accounting to Be Dealt With—Details of U.S. Organization's Work Which May Be Copied in Canada.

AN interesting development of the United States National Trade Extension Bureau's work will be the launching of the "National Campaign of Knowledge," which will be in addition to all the other activities of the Bureau that are reaching and assisting plumbing and heating contractors individually. This bigger business course will be conducted by local organizations of master plumbers and steamfitters throughout the country. In cities where no local association exists arrangements will be made for the local contractors to attend the meetings of the nearest association. Otherwise where there are three or more master plumbers engaged in business who can meet conveniently, this work will be carried out by newly formed organizations for the necessary get-together meetings.

So many contractors, who are scattered in business in small towns where there are no associations, have expressed their desire to attend meetings in some city near by that the Bureau has communicated with the secretary of each existing local association to the end of having these secretaries extend invitations to all contractors in their respective localities. This plan has brought favorable response from all sides.

During the past year T. E. B. has mailed out four steps in business efficiency, covering "Fixed Charge," "Estimating of Plumbing," "Estimating Heating," and "Accounting." In each case, these are thorough treatises covering the facts and practices which are so vitally important in conducting and managing a profitable, growing business.

In order that these essentials, as outlined in the Business Efficiency Course, might become a fixed part of every plumbing and heating contractor's knowledge, T. E. B. has found it necessary to prepare a concise course of study covering this work. This is made up of a series of short, interesting and helpful lectures and lessons. This material will be placed at the disposal of any regular local association or, where no association exists, of any live master plumber who will take it upon himself to call his competitors together at regular intervals and hold the necessary meetings for the study of this work.

The man who thus takes the lead in his own locality will inevitably benefit most of all. He will get out of his study of the subject a firmer grasp of the knowledge involved than will be possible for any of his hearers. An honest effort to convey this knowledge to his fellows will fix it all in his mind so that he will be unlikely to forget any of it. Moreover, he will gain greatly by helping his competitors find the means whereby they can free themselves from the bad conditions for all concerned.

The merchant plumber, in many cases, has developed from a mechanic working for wages into a business man responsible for the entire management of his affairs. He has been so busy trying to save and get ahead that he has been unable to inform himself properly regarding many essentials that he should know about. As a result, he is at a disadvantage in the struggle that is before him. No matter how well he is equipped with the technical or mechanical knowledge of his trade, his knowledge and grasp of safe methods of buying, selling, planning, etc., is too limited for success. When fencing with experts, whose entire experience has been on the businss side, he must necessarily suffer financially and otherwise in the costly experience of playing the other fellow's game without the other fellow's knowledge of the rules. That is the reason other merchants outsell the plumbing and heating trade on its own ground and get the dollars that should flow into this industry.

The only help that is open to such a man is for him to quickly find, somewhere, the missing knowledge. This knowledge must be in practical, workable form and framed in the language of the trade. "Highfalutin" talk won't do. What is needed must be supplied briefly in a package of words and terms that belong and are familiar to the plumbing and heating contractor.

That is exactly what T. E. B. will provide in this "Campaign of Knowledge." It will deal only with facts and figures of the trade which are related to things that actually exist in the methods and practices of successful plumbing and heating contractors. No man in the business can afford to neglect this opportunity to verify and check the soundness of his business methods.

No concern is so big that they will not find something of value here. T. E. B. has been of service to a large number of long established concerns, in pointing out the way to make good business methods better. In some cases, involving large operators, T. E. B. has even pointed out wrong practices that would surely have sent the business "on the rocks."

The only way of raising the standards of this or any other business is to raise the business judgment of the men in it. No man can carry this industry "up the ladder" singlehanded. He must have the co-operation of his fellow craftsmen. To deserve and get this co-operation of his fellows he must himself co-operate. That means that no matter how big or how successful he is he must give of his knowledge and experience to his less fortunate brother craftsmen.

The most logical way to do this is to have get-together meetings and exchange ideas. Ideas and plans can be thus discussed and developed. Such discussions help one to steadily grow bigger until big enough to carry through big ideas. Competitors will learn and adopt constructive ideas with reference to business methods. Thereby new and better methods will replace the destructive ideas and methods which have been and still are working much injury to our industry. Such general and widespread effort, directed toward the goal of bigger and better business, means that no obstacle can change our course. On the other hand, the plumber or steamfitter who is averse to spending time for study in the interest of his business or fails to make mental excursions outside of his routine habits, will soon be left by the wayside in business.

The lack of definite knowledge of business management, of systemized estimating, of reliable accounting, of economical financing and productive selling, has been the direct cause of failure for many contractors. This lack of knowledge is largely responsible for unfair competition and all similar evils that work such serious damage to the business. It is directly responsible for the public's absolute misunderstanding of the services and charges of the plumbing and heating contractor.

This information spreading campaign will point out the most improved modern business methods and will point out to the master plumber and steamfitter the method of combating and putting a stop to the wasteful efforts that he has participated in during the past.

Canadian Trade Commission Soon to Be Wound Up

Ottawa.—The work of the Canadian Trade Commission, it is expected, will be wound up about the middle of November, the last shipments of goods handled by the commission going out of Canada via the St. Lawrence before navigation on that river has closed. At the present time much of the commission's work is devoted to clearing up the business which has already been arranged for.

Heating and Ventilating

Condensation and Condensers

Written for Sanitary Engineer by N. A. KEARNS

IF a cold plate is held in the vapor escaping from a tea kettle, several things may be observed. For instance it will be noticed that part of the vapor as it strikes the cold surface of the plate is converted into water; also that the conversion of the vapor to water is very rapid in the early stages of the experiment and that the plate will be gradually warmed to the temperature of the steam, when no further condensation will take place.

This proves that the measure of the conversion of vapor to water is controlled by the temperature of the plate —the colder the plate the greater the condensation, and thus we see that the condensation of vapor is due to the cooling of that vapor.

If to restore vapor to a liquid it is necessary to cool that vapor; conversely, then, must it be necessary to heat a liquid to change it to vapor.

Now, it takes just so much heat to vaporize a certain quantity of water, therefore the resulting quantity of vapor must lose that same amount of heat before it can be converted back to water.

If steam is evaporated from water at 212 degrees Fahr., and the water of condensation is found to be also at this temperature, we know then that the amount of heat taken up by the vapor, and afterwards lost in the condensing is just equal to the amount of heat required to vaporize a like amount of water from, and at, a temperature of 212 degrees Fahr.

It takes 966 B.t.u. to evaporate 1 pound of steam at this temperature and pressure, the same quantity of heat, viz.: 966 B.t.u. must be removed from the vapor.

So we see that by measuring the volume and temperature of the water of condensation we are able to determine the quantity of heat which has been taken from the vapor.

Pressures

Water boils in an open vessel at a temperature of 212 degrees Fahr. when subjected to the ordinary atmospheric pressure of 14.7 pounds per square inch.

When water is subjected to a greater pressure than this, a higher temperature is required to make it boil; when subjected to low pressure less heat is required. For example: at 90 pounds above vacuum, water must be at a temperature of 320 degrees Fahr. before it begins to boil. At 1 pound above vacuum it will require only 70 B.t.u. to bring it to the boiling point, yet to evaporate the water under this condition will require 1043 B.t.u.

When the same volume of water is subjected to the pressure of 90 pounds above vacuum, it will require 290 B.t.u. to bring it to the boiling temperature, but it will then take only 889 B.t.u. to evaporate that water to steam.

Now in the first case we saw that while there must have been a greater quantity of heat in the vapor obtained under partial vacuum conditions than under pressure conditions, the total heat was somewhat less.

Another thing we must taken into consideration is that vapor obtained from a pound of water under vacuum fills a greater volume than when vapor is obtained from water under pressure. Therefore, when attempting to determine the amount of heat given up in the process of condensing vapor, the experimenter must take into consideration what temperature and pressure conditions existed at the time the vapor was formed.

The air surrounding us is continually taking up vapor from the surfaces of every body of water with which it comes in contact. This vapor is in turn condensed by every cold surface which it strikes. It is also condensed by any increase in the pressure of the atmosphere.

Air at a high temperature naturally takes up more water than when it is at a low temperature.

For every temperature of air there is a corresponding point where the air becomes so saturated with moisture that no more water can be taken up. This is the "dew point." Any decrease in the temperature of the air will lower its dew point and cause it to give up moisture.

An increase of temperature will increase the volume of air and thus increase its capacity for taking up moisture.

In artificial humidifying plants it is the custom to add the moisture to the air when the air is at a relatively low temperature. The air is afterwards heated to the higher temperatures desired to bring it to the proper degree of relative humidity.

Critical Temperatures

We have learned that vapors and gases may be condensed by pressure as well as by cooling.

But there are certain temperatures at which gases cannot be condensed by pressure alone. These are called the critical temperatures of those gases.

The critical temperatures of ammonia, water, alcohol, and carbon-dioxide are above the average temperature of the air.

The critical temperature of water is 690 degrees above zero.

The critical temperature of carbon-dioxide is 87.56 degrees above zero.

The critical temperatures of the gases: oxygen, hydrogen, and air are much below the average temperature of the air.

The critical temperature of air is 180 degrees below zero.

Condensation in Radiators

When a cubic inch of water is changed into steam at atmospheric pressure it will occupy more than 1,600 cubic inches of space. Therefore, if 1,600 cubic inches of steam at this pressure is condensed it will occupy but one cubic inch of space.

Now, if a space of 1,600 cubic inches is filled with steam and that steam is condensed to 1 cubic inch of water there will be 1,599 cubic inches of the space devoid of air and, theoretically, an almost perfect vacuum will result.

Steam turned into a cold radiator is rapidly condensed and a partial-vacuum is formed. This can be proven by an observation of the flame of a candle when held to the vent opening of a radiator.

If the feed valve on the radiator is closed so that no steam pressure exists within the radiator, it will be noted that the steam already in the radiator condenses so fast that the resulting vacuum will pull with considerable force at the vent opening.

The degree of vacuum induced by the condensation of steam in a heating system is not always realized by heating engineers. This is often the case when, so-called vapor plants are installed. In some cases plants have been installed in such a manner that unequal vacuum conditions were established at various points throughout the systems; often with the result that considerable water was held in the radiator until such times as the vacuum became no longer strong enough to offset the force of gravity.

One of the best illustrations showing the pull exerted by a vacuum established by the condensing of steam in a cold radiator is that of the increased height of water line in the returns from the first radiator in a bank of ventilating coils.

(Continued on page 30)

Drafting for the Sanitary Engineer

THIRD ARTICLE OF A SERIES BY ANDREW LOUCKS.—(Continued from last Issue).

Circumscribing Circles

We may wish to find the radius of a circle in which there is to be placed a polygon of a certain number of sides. The length of a side is given.

We, therefore, multiply the length of the given side by the factors herewith given.

Triangle	0.5773
Square	0.7071
Pentagon	0.8506
Hexagon	1.
Heptagon	1.1524
Octagon	1.3066
Nonagon	1.4619
Decagon	1.618
Undecagon	1.7747
Dodecagon	1.9319

Fig. 10 shows an octagon in a circumscribing circle. The length of one of the sides is four feet. The length of the radius of the circle would be 5 feet multiplied by 1.3066, which is 6.539 feet.

Then we may have the radius of a circle and we wish to find what will be the length of the side of any polygon we wish to inscribe within that circle. To find the length of the side of the polygon we must multiply the radius by the factor herewith given for that polygon, thus:

Triangle	1.732
Square	1.4142
Pentagon	1.1756
Hexagon	1.
Heptagon	0.8677
Octagon	0.7653
Nonagon	0.684
Dodecagon	0.618
Undecagon	0.5634
Dodecagon	0.5176

The radius of the circumscribing circle in Fig. 11 is 6.539 feet, therefore the length of one of the sides of the inscribed heptagon is $6.539 \times 0.8677 = 5.674$ — sq. ft.

Inscribed Circles

When a circle is inscribed within a polygon, and when we know what is the length of the radius of that circle, we can find the length of a side of the polygon by dividing the radius by the number herewith given.

Triangle	0.2887
Square	0.5
Pentagon	0.6882
Hexagon	0.866
Heptagon	1.0383
Octagon	1.2071
Nonagon	1.3737
Decagon	1.5383
Undecagon	1.7028
Dodecagon	1.866

But we know the length of the side of the polygon, and wish to find the length of radius of the inscribed circle. All we need do to find this is to multiply the length of the side by the number corresponding to the polygon as it appears in the above table.

Example:—It is required that a circle be inscribed in a undecagon, the length of one side being six inches. What is the radius of the circle?

Answer:—$6 \times 1.7028 = 10.2168$

Therefore the radius of the circle is $10\frac{7}{32}$ inches.

The Hypotenuse

In Fig. 9, a right-angled triangle is shown. The line AB is the base of the triangle. The line BC is the height, or altitude, of the triangle. The line AC is the hypotenuse.

To find the length of the hypotenuse when the length of the base and the height lines are known.

The square root of the sum of the squares of AB and BC should be extracted, the resulting figures will be the length of the hypotenuse.

Example: In Fig. 9, the length of AB is eleven feet. The length of BC is six feet.

The square of eleven is 121
The square of six is 36
The sum of 121 and 36 = 157
The square root of 157 = 12.53

Therefore the length of the hypotenuse is twelve feet, six and three-eighth inches.

This rule is often made use of in laying out squares. The rule usually followed is that when one side of the angle is made three feet long, the other side of the angle is made four feet long, and then the ends, corresponding to AC in the drawing, are thrown back or drawn forward until the length of the hypotenuse is just five feet. And multiples of three, four, and five may be used. For instance: If one side is taken to be nine feet long, the other line must be considered as twelve feet, and the hypotenuse as fifteen.

Circles

To find the circumference of a circle when the diameter is given: Multiply the diameter by 3.1416. In most cases multiplying the diameter by $3\frac{1}{7}$ will be accurate enough.

To find the diameter of a circle when we know the circumference: Divide the circumference by 3.1416. Multiplying the circumference by 7 and dividing by 22 will give almost the same result.

The area of a circle may be found by multiplying the square of the diameter by 0.7854, or by multiplying the square of the diameter by 3.1416.

Arcs

In Fig. 12, an arc is shown. The length of the cord, and the length of the rise are given. It is desired that the length of the radius be found.

The rule by which the length of radius is found: Square one-half the cord, AB, square the rise CD, and divide their sum by twice the rise.

Example: The length of the cord AB in Fig. 12 is fifteen feet. The length of the rise, CD, is 4 feet. The square of 7½ (half the length of 15) is 56.25. The square of 4 (the length of the rise) is 16. The sum of $56.25 + 16$ is 72.25.

The sum of 72.25 divided by 8 (twice the length of the rise) is 9.031, or nine feet and three-eighths of an inch; which is the length of the radius.

Then, again we may have the length of the cord and the length of the radius, so we wish to find the rise of the arc. To do this we must first square the radius, and then square one-half the cord. We then subtract the latter from the former figures. We take the square root of the remainder from the radius and the result will be the rise.

For an example we shall consider the radius in Fig. 12 is nine feet long, and that the length of the cord is fourteen feet.

Now the square of nine is 81. The square of ½ of 14 is 49. Substracting 49 from 81 gives us a result of 32. The square root of 32 is 5.657—subtracting 5.657 from 9 leaves us 3.343 or three feet, four and one-eighth inches, which is the length of the rise of the arc.

The Next Article

In the next article we purpose to give the rules required for figuring the areas of spherical surfaces. We shall also give the rules used in figuring the volume of various shaped bodies.

The student is to remember that while these rules of mensuration may seem to involve the use of more mathematical calculations than are necessary in a presentation of instructions for drafting, that these rules are for the purpose of developing the mental faculties along the lines that will be required in the student's daily work.

Many long and arduous calculations by figures may be simplified by geometrical operations, but until such a time as the student can clearly see why the operations are formed in a certain way, his only course is along the way of figures.

Little by little the knowledge of graphical methods of calculation will come to him, and he will continually find short cuts whereby he may simplify many of the rules that he will receive in the early parts of this course.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

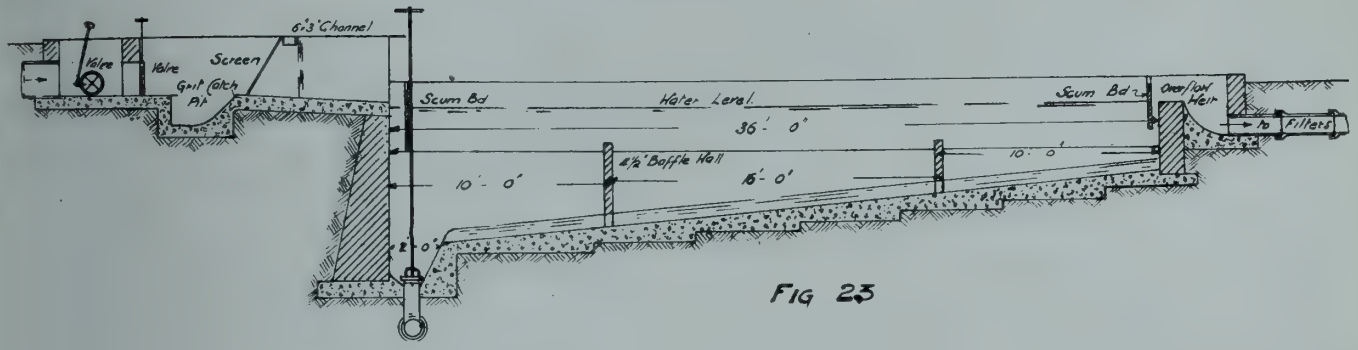


FIG 23

Article No. 17 of the Series

ILLUSTRATION NO. 23

Continued from last issue

SEWAGE DISPOSAL

AFTER screening, the sewage then passes through a small tank attached to the screens at a velocity sufficient to produce the settlement of all sand and grit, etc., at the same time not allowing settlement of any suspended solids which are liable to secondary decomposition. An overflow pipe or by-pass should be laid in this chamber so as to divert the sewage to enable the works to be closed down for repairs or cleansing operations and should precede if possible the small detritus tank.

After the mineral floating matter, sand and grit (which are harmful in tank treatment) have been removed by the previous combined chamber, the next operation is the classification of the sewage by the removal of the grosser suspended solids. This is best brought about by passage of the sewage through some form of tank at various velocities—depending upon the style of tank adopted.

EDITORIAL COMMENT

KEEPING THE YOUNG PEOPLE ON THE FARM—MAKING RURAL LIFE ATTRACTIVE

MANY young people in the past when asked why they have left the farm for the city have stated as their chief reason that the country home lacked conveniences which have been common in even the humblest of urban homes for the past twenty years. Running water, modern lighting, and certain laundry appliances are the main features that are mentioned as the essentials of the up-to-date residences.

Recent medical surveys in the United States have brought to light the rather startling fact that defective eyesight is more prevalent in the rural section than in the cities, the reason given, of course, being the poorer artificial lighting found in the rural district.

From certain diseases there is said to be a higher death rate in farm and rural districts than in the city. This condition is largely the result of the conditions in which the inhabitants of such districts are forced to live and the privations which are theirs. Herein lies one of the strongest arguments for the increased use of water systems, electric light plants, and labor saving devices in these districts. The underlying idea is not so much one of trade as it is a rendering of service to humanity.

DOMINION-WIDE ORGANIZATION OF SANITARY INSPECTION

A FURTHER step toward organized effort in plumbing circles is indicated by the report that at the recent convention in Edmonton of the Sanitary Inspectors' Association of Western Canada, the organization was extended to embrace inspectors in all parts of the Dominion and for this purpose the new name of the organization is "The Canadian Sanitary Association." New constitution and by-laws are being framed and then the work of organizing inspectors in Canada into one body will be commenced.

The organization of plumbing inspectors in Ontario recently took place and similar movements have been commenced in other Eastern provinces. The West is fairly well organized, the Western Association having commenced in 1913 and it is therefore only logical that this oganization should be the first to take up the question of a consolidation of effort in one parent body. Undoubtedly much more good can be accomplished by a Dominion-wide organization and its recommendations will have greater weight coming as they will from a representative body. There is much good work to be done by such an organization in Canada in co-operating to maintain high standards of sanitary efficiency, and in seeing that proper regulations are put into effect to protect the health of the community. Investigations and recommendations for changes in plumbing regulations to improve conditions will be an important part of the work of such an organization. The formation of a representative Canadian body of inspectors will help to standardize sanitary regulations and will bring the knowledge born of experience in other parts of the country to those which yet have their lessons to learn. The logical result will be to raise sanitary standards and give the measure of protection which is necessary.

CANADA'S GREAT WHEAT CROP

ACCORDING to reports of the estimated wheat crop in Canada this year it will net the Dominion a sum in excess of $700,000,000, and the exportable surplus to be applied to a readjustment of the exchange situation will approximate in value nearly half a billion dollars. This of course does not take into consideration the immense crop of oats, barley and flax and the abundance of fruit and vegetables which the present season has given, the value of which is very great.

Government statistics place Canada's wheat at 289,000,000 bushels as against 193,260,000 bushels for last year. The oat crop will aggregate 556,000,000 bushels as against 394,000,000 bushels in 1919. Barley will total 64,257,000 bushels as against 56,000,000 bushels a year ago, and flax will total 11,000,000 bushels.

The first carload of wheat sold on the Chicago exchange netted the owner $2.77 per bushel. The greater portion of the crop of

wheat this year will be of high grade. But even estimating the average price at $2.50, the amount which the new wheat crop will bring will be in the neighborhood of $700,000,000.

PAYS TRIBUTE TO BUSINESS PRESS

"THAT, in the opinion of this Congress, it is desirable, with a view to the encouragement of closer trade relations within the Empire, special efforts should be made to secure the wider distribution of trade journals throughout the Empire, and that more favorable postal facilities should be accorded by the various governments to this end."

The above is copy of resolution unanimously passed at the meeting of the British Chambers of Commerce held in Toronto. It was moved by Mr. Symonds of the London, England, Chamber of Commerce, and seconded by Sir Thos. Mackenzie, former Prime Minister of New Zealand.

This important resolution stands out in bold contrast with the effort put forward by M. E. Nicholls, Director of National Publicity for the Government at Ottawa, to legislate the trade and technical papers out of business. In spite of the opposition of M. E. Nicholls and J. E. Atkinson of Toronto Star, the Chambers of Commerce of the entire British Empire composed of many of the best trained business and technical experts has seen fit to pass this resolution emphasizing the great importance of the specialized business and technical press to those who would better understand conditions in the various parts of the Empire. The incident again shows the need of our governments selecting men of clear-sighted vision to look after the country's welfare.

EDITORIAL BRIEFS

MANY of the high prices stated to have been due to profiteering by sellers were really due to competition by buyers.

* * *

WITH men now seeking jobs, instead of jobs crying out for men, there is a noticeable improvement in production. There are few employers of labor who are unwilling to pay high wages to their employees provided the employees reciprocate, thus creating mutual benefits.

* * *

WE are now undergoing the process of readjustment, facing conditions and making adjustments which some business men claim should have been made immediately following the armistice. One benefit to be derived is the greater return from money expended for labor. The plumbing trade will probably be the last to feel any decided slump in business. Sudden sharp price declines have not been noticeable in plumbing as in many other lines. Plumbers deal in necessities not luxuries. While the plumbing business may not have the gilt and glamor of some other lines of business, neither has it the nightmare of depression to worry about.

FORM "CANADIAN SANITARY ASS'N."

Continued from page 13

minion is the logical result of such organization.

Interesting Program at Convention

Great interest was taken in the whole proceedings of the convention and much valuable information concerning sanitary work was given by the speakers. The delegates were welcomed by Mayor Clarke of Edmonton at the introductory session in the council chamber of the city hall, at which time the presidential address was also delivered.

The first afternoon session was featured with an address on "Sanitary Inspectors and their relation to the Public Health," by T. H. Whitelaw, M.D., Medical Health Officer of Edmonton, Alta. This was followed by an address by W. C. Laidlaw, M.D., Provincial Medical Health Officer for the Province of Alberta. Following this a visit was paid to the Parliament Buildings, University Farm, Military Hospital, etc. In the evening a banquet was tendered to the delegates by the Edmonton Local Board of Health and the Provincial Board of Health.

At the morning session on the second day of the convention a paper was read by A. Wright, Chief Sanitary Inspector of Prince Albert, Sask., on the subject "The Past History of Hygiene and Epidemics." This was followed by an address on "Alberta Hospitals" by A. K. Whiston, Secretary of Municipal Hospitals Branch, Alberta, and an address on the "Relation of Relief Work to the Work of the Health Department" by Miss King. A paper entitled "A Better Prevention of Tuberculosis" was read by Thos. Watson, M.R., Chief Sanitary Inspector for Saskatchewan.

At the afternoon session a round table conference was held and discussion of Public Health Acts and Regulations thereunder was introduced by R. B. Owens, B.A., Provincial Sanitary Engineer of Alberta. The annual business meeting was held in the evening. The afternoon of the third day of the convention was spent in a visit of inspection to the city pumping station, filtration plant, Swift's packing plant, Government House and Capital Hill.

Details of further meetings of this new organization, which will be held to consolidate the interests of inspectors throughout Canada, will be given in a later issue.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

NEW BUSINESS

St. Vincent De Paul.—Gosselin Alcide & Co. were recently registered to carry on the business of plumbers, etc.

NEW BUSINESS

Sudbury.—Messrs. Graw and Hiscock have commenced a plumbing business here.

Calgary, Alta.—A. R. Wright has opened a plumbing and heating business in Calgary.

OBITUARY

Toronto.—The many friends of W. H. Cunningham, of W. H. Cunningham & Company, 269 Richmond Street West, will regret to learn of the death of Mr. Cunningham's mother, which recently occurred in Toronto.

BIGGEST FALL BUSINESS IN HISTORY

Galt.—Scott & Bennett report a very good fall business. They have been recently awarded small contracts of $500 to $700 and two large ones amounting to $50,000, namely, central heating in the Galt Hospital and plumbing and heating in the new building of the Galt Brass Co.

NEW WATERWORKS FOR BORDER CITIES

Windsor. — Addressing the Central States section of the American Water Works Association at the Statler Hotel, Detroit, Charles Henderson, an eminent Pittsburg engineer, discussed in detail four separate plans for a waterworks system to supply the Canadian border municipalities of Walkerville, Windsor, Fort Erie, Sandwich and Objibway.

Of the four plans Mr. Henderson stated that the one which has been recommended to the Essex Border Utilities Commission as most adaptable will entail an expenditure of $1,796,000.

The use of existing equipment at the Windsor-Walkerville waterworks is recommended, as is also the construction of an intake, a filtration plant, and a "low life" pumping station. This plan, Engineer Henderson stated, has already been submitted to Dr. J. W. S. McCullough, Ontario Medical Health Officer, and has received his approval. The cost basis for operating the system would be assessed pro rata. Thus, Windsor using 7,600,000 gallons daily would be assessed 50.6 per cent., as the total pumpage is 15,000,000 gallons. The Utilities Commission now has the plan under consideration.

WATER SUPPLY FOR ETOBICOKE

Islington.—Etobicoke council instructed their solicitor to prepare a by-law for water supply purposes for Etobicoke area. Engineer E. A. James was authorized to describe the by-law, which is for presentation to the Ontario railway and municipal board. The Long Branch ratepayers had presented a petition for this water supply in 1917, but the matter had been deferred until after the war. A petition with 119 signatures reopened the matter, asking also that district No. 3 be included in the new water area, so that the area be the whole of S.S. No. 12.

DEATH OF VICE-PRESIDENT OF CANADIAN ASBESTOS CO.

Henry Berry, Vice-President and General Manager of the Canadian Asbestos Co., died at his home in Montreal on Monday last after a lingering illness. The late Mr. Berry was a pioneer in the Montreal asbestos industry and gave himself over to the prosecution of his chosen work for many years past. During the greater part of his life he was connected with the development of the asbestos industry and under his management and direction many new asbestos products were brought before the Canadian trade. At the same time he found time to be associated with the work of the Canadian Manufacturers' Association and with the Montreal Board of Trade. In his efforts to popularize the use of asbestos products he travelled extensively throughout Canada. Possessed of a strong personality he naturally made many friends. He is survived by his widow and three sons.

LATEST MONTREAL BUILDING PERMITS

Montreal.—Permits taken out with the City of Montreal for buildings, since September 1, are swelling themselves to near the million mark. Early this week the totals had reached $824,000, so that by the month-end the figure should be well above the $1,000,000 figure. The permits are of all descriptions, some being taken out for industrial buildings and others for warehouses, etc. There are many covering extensive alterations or repairs. If this work is proceeded with, as in many cases it will, this fall, it will mean considerable activity well into the year-end.

WESTERN ONTARIO NEWS

Dr. H. W. Hill, of the Institute of Public Health, London, Ont., has been appointed a member of the Western University committee.

Fred Wilson, Amherstburg, Ont., wants prices on heating and plumbing for new $5,000 residence on which work is just starting.

John Putherbough, 272 Regent Street, London, Ont., is preparing plans for a new $15,000 residence and wants prices on hot water heating and plumbing.

Noble and Rich will look after all plumbing and heating in connection with forty new dwellings being erected by the London Housing Commission at London, Ont.

A by-law will be voted on at Blenheim shortly to provide funds for remodelling the old power house into a Memorial Hall and rest room and installing public lavatory.

Plans are being prepared by the London Concrete Machinery Co., of London, Ont., for a new factory to cost $100,000. Prices wanted on heating and plumbing. Henry Pocock, president.

Eggett & Co., London, Ont., have been awarded contract for heating and plumbing for new nurses' home and six residences for attendants at new Psychiatric Hospital in Westminster Township, near London, to cost $150,000.

Plans are being prepared at Petrolea, Ont., for a combination comfort station and public rest room to cost $15,000. Councillor Morris is chairman of the special committee and prices are wanted on plumbing equipment.

Harvey Gleiser, for many years an employee of the Liphardt Bros.' hardware at Waterloo, Ont., has started in business for himself as a sanitary and heating engineer. His shop is located in the Devitt Block on Erb Street and he will be glad to receive catalogues and prices from manufacturers.

CONTRACTS AWARDED

London.—Williams & Roberts, plumbers and steamfitters, London, Ont., have been awarded the following contracts:

Plumbing in E. Jefferson's $15,000 residence.

Plumbing and heating in R. Hill's $18,000 residence.

Plumbing and heating in C. Elliot's $25,000 residence.

Plumbing and steamfitting in Egerton Street Baptist Church.

METERED WATER SERVICE TO BE TRIED AT WINDSOR

The Windsor Water Commission has decided to place meters with all large consumers of the city's water supply.

This means that the metered system of charging will be employed in all buildings except residences.

The board has also authorized a thorough inspection of the intake of the city water works. The work will be done by divers, who will investigate the pipes which run for 600 feet out into the river at Langlois Avenue. The inspection is made simply as a safeguard before the cold weather sets in.

TODMORDEN WATER SUPPLY

A deputation from the Todmorden Ratepayers' Association asked for information as to when the application for light, water, and sewage facilities for the eastern portion of the township would produce results. They were told that nothing could be expected for the present year, but that in the matter of water supply, relief would be forthcoming early next year, as the township engineer is now considering the best place to install a stand pipe to handle the 25,000 gallons of water per day promised for supply of the district by the City of Toronto. As the further requirements of the district are made known, application will be made to the city for a further supply.

N.C.R. HAS NOVEL PROFIT-SHARING PLAN

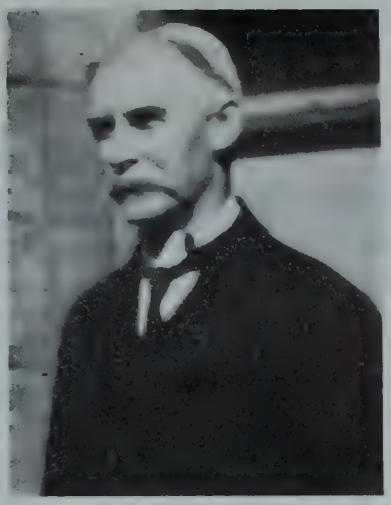
A profit-sharing plan of an original and unusually liberal character is announced to the Canadian employes of the National Cash Register Co. by Frederick B. Patterson, vice-president, who made the trip from Dayton expressly to explain the many unique features of the plan. Briefly summarized, the plan calls for a clean fifty-fifty division of profits between company and all employees, who are not members of the company, with odds, if any, inclining in favor of the employes.

The profits of the company are to be determined by an outside firm of accountants. From the total profits will be deducted an amount equal to six per cent. interest on the money invested by the company.

After the six per cent. interest is deducted, the remaining profits are divided equally between employees and company

CATCHES HUGE FISH

Montreal.—Hugh Kearns, managing director of B. & S. H. Thompson & Company, Ltd., wholesale metals, Montreal, has the honor of landing the biggest speckled trout of the season, so far as Sanitary Engineer is aware. Its weight was 8¼ pounds and actual measurement shows that it had attained a length of 29 inches. The catch was made in the Laurentide National Park area, in Jacques Cartier river, Quebec. How Mr. Kearns and his associates escaped a ducking is not made clear, as they were in a canoe at the time of the monster's attack on the small bait that led to his ultimate undoing. "Ultimate"—for it was a round half-hour before he could be landed. The practical evidence of Mr. Kearn's prowess as an angler is mounted, with fly and leader, and has been exhibited in a local newspaper office window.



W. H. MEADOWS

Secretary of the newly-formed Association of Plumbers and Drainage Inspectors of Ontario, who recently held their first official meeting in Toronto.

MAJOR McPHERSON INSPECTS NEW WATERWORKS

Moose Jaw, Sask.—Major McPherson chairman of the Saskatchewan River Water Commission, who was in the city for a conference with City Engineer Commissioner George D. Mackie and W. F. MacBean, the local members of the board, inspected the new waterworks system at Britannia Park and was pleased with the volume of water which is being secured there.

Major McPherson made inquiry into the system and the data which have been secured as to the volume of water and the possibilities of the future. He was told by the city engineer commissioner that at present the city secures between 700,000 and 750,000 gallons of water per day from this source.

USERS OF STEAM HEAT ADVISED TO MAKE OTHER ARRANGEMENTS

Chatham.—The question of the operation of the plant of the Chatham Steam Heating Company was discussed at a meeting of the directors of the Chamber of Commerce. The outcome of the debate was that the present users of steam heat were advised to make other arrangements for heat for the coming winter if possible. In the meantime the Chamber will appeal to the Government to allow the C. W. & L. E. to use a limited amount of natural gas this winter for the generating of electric power. The heating company use the exhaust steam from the railway power house for heating purposes and the railway claim it is impossible to make the line pay through using coal for fuel.

PLUMBERS NOT PLENTIFUL

Montreal. — While master plumbers have reported to Sanitary Engineer that they have been able to secure the necessary men to undertake and complete work, there seems to be some difference of opinion. At the same time it would seem that good men are able to obtain the best of employment.

According to the business agent of the Montreal Plumbers and Steamfitters' Union, plumbers have been offered good positions outside of the city and a recent advertisement of the local agent for this union was offering employment to plumbers and steamfitters who desire to undertake work at outside points. There is, at the present time, a fair amount of jobbing work being undertaken by the masters, although an increase in building activity would be very welcome at this time.

BETWEEN 85 AND 90 PER CENT. OF WORLD'S CONSUMPTION OF ASBESTOS MET BY QUEBEC PROVINCE

Canada leads in asbestos, and exportations continue to grow more important. Ontario's pre-eminent position with regard to nickel is closely approximated by Quebec's wealth in asbestos. While a large part of the first-named mineral is refined in Canada, however, only a very insignificant portion of the asbestos output is obtained for domestic manufacture.

Exports of Canadian asbestos in 1919 totalled 134,478 tons, with a value of $9,886,460, according to the Canadian Customs Department. Of this quantity 95,976 tons of asbestos fibre, crude and mill stock, with a value of $7,232,744, went to the United States; 10,500 tons, with a value of $902,796 went to Great Britain, and 3,446 tons, with a value of $1,490,155 went to other countries; 26,156 tons of asbestos sand and waste, valued at $259,875, was exported to the United States, and 15 tons, valued at $900, to other countries.

CRANE COMPANY DEVELOPMENT

The Crane Company have purchased the business of Mr. Henderson Black in Canadian Potteries Ltd., St. Johns, Que. This firm manufactures sanitary earthenware and the plant will be operated under the old name at the above place. This furnishes the Crane Company with another link in its Canadian chain, branches of the firm being located now in the principal Canadian distribution centres. At Toronto, the pipe plant, warehouse and garage are expected to be completed within a comparatively short time.

The building indust
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project in Canada's home building a
We can be of service to you and awa

Port Hope Sanitary

Factory :
PORT HOPE, ONTARIO

Toronto Show Rooms :
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

has been neglected eight years

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our commands.

fg. Company, Limited

lifax Office :
BLDG., HOLLIS ST.

Head Office :
ROYAL BANK BUILDING, TORONTO

Montreal Showrooms :
234 BEAVER HALL HILL

Slight Building Decline in August

Indications Are That Considerable Building is Being Held Over—Declines More Numerous in Western Cities—Conditions Generally Do Not Favor Broadscale Development

IN sharp contrast to the expansion in building throughout Canada during the early months of the year, the total value of building permits issued during the month of August fell behind the total for the corresponding month a year ago. Building permits issued last month reached a total value of $9,351,110 for 45 cities, as against $10,564,996 for August, 1919, or a decrease of $1,213,886. Building has been particularly active throughout Canada during the early part of the year, notwithstanding the unfavorable building conditions arising out of the great scarcity and high cost of materials, and the volume in each case was far in advance of the returns for the corresponding months a year ago. This fact is revealed in the total for the first eight months of the year, of $80,795,636, as compared with $48,107,121 for the first eight months of 1919. Last year building was just beginning to revive on an extended scale in the month of August, and the total for the last four months was almost equal to the returns for the first eight. This year, however, the conditions continue to exercise an increasingly unfavorable influence with the result that a large quantity of construction which would otherwise have been undertaken this year has been held over until the return of more favorable building conditions. The present situation has been accentuated too by the dullness characteristic of the midsummer period, and for this reason a fair revival is looked for this fall.

BUILDING PERMITS ISSUED IN AUGUST

Eastern Cities.

Maritimes—	Aug., 1920	Aug., 1919	Change	8 mos. 1920	8 mos. 1919	Change
Halifax	$ 380,370	$ 480,075—	$ 99,705	$ 2,874,853	$ 2,407,033+	$ 467,820
Moncton	256,600	422,250—	165,650	1,025,435	1,857,481—	832,046
Sydney	45,625	117,750—	72,125	554,292	506,025+	48,267
St. John	22,200	57,000—	34,800	646,250	195,000+	450,750
Quebec—						
Montreal	$ 1,336,350	$ 1,541,245—	$ 204,895	$10,996,379	$ 5,913,668+	$ 5,082,711
Quebec	150,631	162,245—	11,614	1,814,355	1,070,379+	743,976
Westmount	109,255	182,425—	73,170	957,735	527,816+	429,919
Three Rivers	47,800	84,900—	37,100	701,530	417,675+	283,855
Ontario—						
Brantford	$ 78,305	$ 61,890+	$ 16,415	$ 650,573	$ 568,765+	$ 81,808
Chatham	49,650	14,550+	35,100	322,404	209,157+	113,247
Galt	24,080	23,846+	234	223,410	245,846—	22,436
Guelph	161,388	11,950+	149,438	374,913	378,717—	3,804
Hamilton	414,995	506,065—	91,070	3,332,095	2,722,714+	609,381
Kingston	22,331	45,508—	23,177	488,271	426,172+	62,099
Kitchener	47,025	39,930+	7,095	1,013,565	653,195+	360,370
London	236,040	867,420—	631,380	1,249,340	1,586,655—	337,315
Ottawa	284,157	168,490+	115,667	2,116,668	2,073,887+	42,781
Peterborough	10,950	9,875+	1,075	198,565	76,990+	121,575
Port Arthur	38,659	411,572—	372,913	174,189	634,198—	460,009
St. Catharines	156,896	57,905+	98,991	667,792	422,354+	245,438
St. Thomas	101,095	8,290+	92,805	210,656	151,525+	59,131
Stratford	31,040	12,115+	18,925	342,458	136,147+	206,311
Toronto	2,216,116	1,844,303+	371,813	17,786,341	10,362,590+	7,423,751
Welland	32,705	39,806—	7,101	253,385	270,271—	16,886
Windsor	272,125	241,815+	30,310	3,817,300	1,366,345+	2,450,955
Woodstock	33,053	9,290+	23,763	233,429	77,488+	155,941
York Township	556,300	581,150—	24,850	3,344,950	2,712,275+	632,675
Ft. William	69,300	29,875+	39,425	494,460	542,855—	48,395
Total 28 E. Cities.	$ 7,185,041	$ 8,033,535—	$ 848,494	$56,865,593	$38,513,723+	$18,351,870

Western Cities.

Manitoba—						
Brandon	$ 58,000	$ 7,400+	$ 50,600	$ 113,950	$ 51,462+	$ 62,488
St. Boniface	85,275	144,020—	58,745	380,920	248,360+	132,560
Winnipeg	496,050	710,900—	214,850	7,091,950	1,491,450+	5,600,500
Alberta—						
Calgary	$ 100,200	$ 121,500—	$ 21,300	2,117,600	$ 1,858,400+	$ 259,200
Edmonton	68,711	94,755—	26,044	3,052,350	728,975+	2,323,375
Lethbridge	5,885	9,835—	3,950	86,635	119,980—	33,345
Medicine Hat	4,000	6,350—	2,350	41,131	237,273—	196,142
Saskatchewan—						
Moose Jaw	$ 36,875	$ 110,685—	$ 73,810	$ 1,362,000	$ 385,495+	$ 976,505
Prince Albert	8,750	52,976—	44,226	381,205	211,331+	169,874
Regina	647,220	338,635+	308,585	2,239,620	1,137,145+	1,102,475
Saskatoon	157,300	561,250—	403,950	1,002,140	1,020,825—	18,685
Weyburn	19,000	.....+	19,000	2,392,066	4,070+	2,387,996
Yorkton	130,200	156,370—	26,170	330,595	306,515+	24,080
N. Battleford	.....	.....	.....	5,325	21,690—	16,365
British Columbia—						
New Westminster	$ 13,550	$ 20,957—	$ 7,407	$ 231,315	$ 116,182+	$ 115,133
Vancouver	308,227	173,345+	134,882	2,602,794	1,397,671+	1,205,123
Victoria	26,826	22,483+	4,343	498,447	256,574+	241,873
Total 17 W. Cities.	$ 2,166,069	$ 2,531,461—	$ 365,392	$23,930,043	$ 9,593,398+	$14,336,645
Total 45 Cities	$ 9,351,110	$10,564,996—	$1,213,886	$80,795,636	$48,107,121+	$32,688,515

Money Dullness in West

The total for 28 eastern cities was $7,185,041 against $8,033,535 last year, and for the 17 western cities $2,166,069 against $2,531,461. A large number of cities report declines over the corresponding month of last year. Toronto is one exception, however, the returns this year being $2,216,116, compared with $1,844,303. Montreal reports a total of $1,336,350 as against $1,541,245 last year. The declines are more numerous proportionately in the case of the western cities, the largest at $403,950 having been suffered by the city of Saskatoon. Regina reports an increase of $308,585, and Vancouver $134,882.

The following are among the important permits issued: Moncton, hotel, repairs, $60,000; Chatham, club room, $10,000; Guelph, 24 houses, erected by Guelph Housing Commission, $84,000; Hamilton, boiler house and chimney, The Canadian Cotton Co., $50,000; office building, $100,000; arena, addition, $40,000; London, school, $80,000; warehouse, $20,000; Port Arthur, school addition, $10,000; express building, $10,000; St. Catharines, dormitories, Ridley College, $100,000; York township, club house, $14,000; St. Boniface, varnish factory, $30,000; Winnipeg, Union Bank building, $62,000; car barns, $60,000; St. Thomas, Milk Products, factory building, $60,000; iron foundries, $35,000; Regina, bank building, $175,000; theatre, $200,000; Government power house, $131,000; warehouse, $12,000; Weyburn, express office, $15,000; Yorkton, school, $90,000; Vancouver, store alterations, $40,000; factory, $50,000; Victoria store, $11,500.

DOMINION STEEL CO. SHIP PLATES TO NEW ZEALAND

The Dominion Steel Co.'s new steel plate mill is working regularly, and in addition to supplying the home market the company has begun to make shipments of steel plates abroad, a large consignment being now on the way to New Zealand. When the mill is worked at full capacity it will turn out 250 tons of plates daily.

NEW CANADIAN PATENTS

(Issued for Plumbing and Heating Goods)

NO. 203,013 STEAM CONDENSING AND WATER HEATING PLANT

Donald Barns Morison, Hartlepool, Co. of Durham, England.

A method of working steam condensing plant of the type defined according to which under the conditions of normal full load the temperature of the condensate or other water used as condensing water in the auxiliary condensing device is raised as high as possible, the limit being dependent upon the predetermined steam pressure in the auxiliary condensing device and the maximum temperature at which the water can be dealt with by the pump which withdraws it from the auxiliary condensing device, by the use in the jet or jets of a quantity of steam which together with the aerated vapor withdrawn from the main condenser will ensure the attainment of this desired temperature.

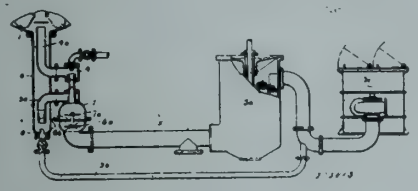


Fig 1.

A method of working steam condensing plant of the type defined according to which under the condition of normal full load the condensate or other water used as condensing water in the auxiliary condensing device is raised to a predetermined temperature corresponding approximately to the steam pressure in the auxiliary condenser by the use in the steam jet or jets of a quantity of steam the heat in which, together with the heat in the aerated vapor withdrawn from the main condenser, will result in the attainment of the desired temperature.

A method of working steam condensing plant of the type defined according to which under the condition of normal full load the temperature of the condensate or other water used as condensing water in the auxiliary condensing device is raised to the maximum at which it can be dealt with by the pump withdrawing it, by the use in the jet or jets of such a quantity as will effect the desired result.

* * *

NO. 202795 WATER CLOSET BOWL

The Canadian Brass Co., Ltd., Galt, Ontario, Canada, assignee of Bert O. Tilden, Trenton, New Jersey, U.S.A.

In a siphon jet water closet, the combination of the bowl with a siphon structure having a dam chamber disposed eccentric to the longitudinal axis of the bowl, one wall of said dam chamber being vertical, said structure having a lateral chamber separated from the dam chamber and the intake leg by said wall, said lateral chamber adapted to receive and to conduct a portion of the flushing water beneath the bottom of the bowl, and a nozzle communicating with said lateral chamber and mounted on the bottom of the bowl arranged to deliver a jet of water at an angle towards one end of said dam chamber.

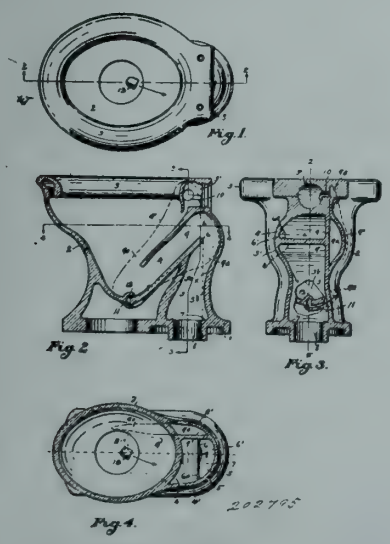


Fig 1.

Fig 2.

Fig 3.

202795

Fig 4.

In a siphon jet closet, the combination of the bowl with a siphon structure having an intake and a discharge leg and a dam chamber at the intersection of said legs, one end of said dam chamber being disposed closer to the line of the longitudinal axis of the bowl than the other end, said structure adjacent one end of said dam chamber having a lateral chamber adapted to receive and to conduct a portion of the flushing water parallel to the intake leg and to deliver said water to the bottom of the bowl through a transverse duct, and a nozzle disposed at an angle to said axis adapted to shoot a jet of the water towards the remote end of said dam chamber.

In a water closet, the combination of the bowl with the intake leg, the discharge leg and the dam chamber at the intersection of said legs, one lateral side of said dam chamber comprising a plane well disposed parallel to the longitudinal axis of the bowl, a laterally bulging wall moulded to the outer surface of said plane wall and spaced therefrom to provide a lateral chamber adapted to supply the water for a siphon jet, said lateral chamber communicating with the bottom of the bowl by a transverse duct, and a nozzle forming the discharge end of said duct, said nozzle disposed at an angle to the axis of the bowl and adapted to direct a jet of water up said intake leg for diverting the main flushing stream laterally away from said plane wall.

* * *

NO. 202,748 SINK FITTINGS

Harrison Shields, Fort Dodge, Iowa, U.S.A.

In a device of the class described, the combination, a sink back, a bibb having an externally threaded stem arranged to extend through the sink back and a flange formed on the bibb, said flange having an inwardly extending rib formed on the outer face of the sink back, and a pipe fitting having an internally threaded bore arranged to receive the threaded stem, and an outwardly extending flange formed on the forward edge of the pipe fitting, said flange having an inwardly extending rib formed on the outer edge thereof arranged to engage the rear face of the sink back in rear of the rib formed on the flange of the bibb to prevent movement of the bibb, as and for the purpose specified.

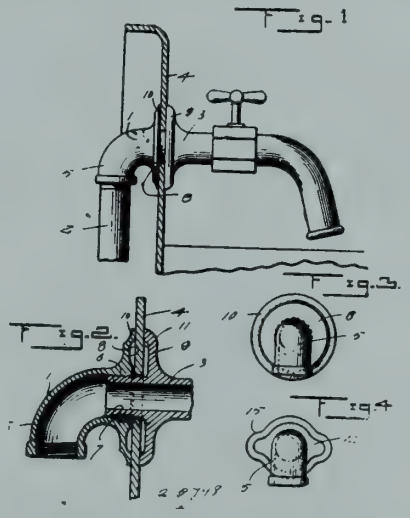


Fig. 1

Fig. 3.

Fig. 2.

Fig 4

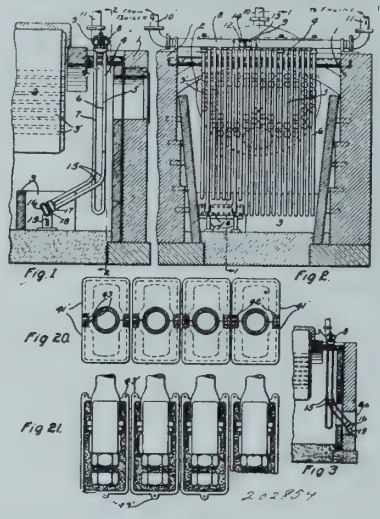
2 8 7 4 8

A sink fitting comprising an elbow member having a flange fixedly mounted thereon and located at the end thereof and having a face lying in a plane parallel with the plane in which the adjacent end of the elbow member lies and beyond the same, a valve member having a spigot and adapted to enter the elbow member and engage the same, there being a flange fixedly mounted upon the valve member at a point between the ends thereof and the flange upon the valve member having a face juxtaposed with relation to the fact upon the flange of the elbow member, the areas of the faces of the flanges being approximately equal to each other.

NO. 202854 SUPERHEATER

The Locomotive Superheater Co., assignee of Benjamin Brodio, both of New York City, New York, U.S.A.

In a steam superheater or similar apparatus the combination of a plurality of header chambers, units connected to them and together with them constituting a path such that the steam flows first through some of the units and thereafter through the remaining units, and means at a point remote from the header chambers making accessible the interior of those units through which the steam passes first.



In apparatus of the class described, the combination of a plurality of headers, superheater units detachably secured to said headers, a number of the units less than the total having means to make their interior accessible at a point remote from the headers, the remaining units having their interior inaccessible, except from their ends.

In apparatus of the class described, the combination of a plurality of headers, superheater units comprising return bends detachably secured to said headers, a number of the units less than the total having means to make their interior accessible through the return bends, means to direct a current of hot gases against and along the units, means to protect the return bends from said current, and additional means to protect the return bends permitting access to the interior.

* * *

NO. 202702 COLLAPSIBLE GRATE

Nicholas P. Kosteck, Pitkin, Colorado, U.S.A.

In a device of the class described, a bottom frame composing a plurality of parallel bars forming longitudinal elements of the frame, bars connecting the ends of the longitudinal elements, upstanding devices carried by the said longitudinal elements, and frames pivotally connected to the upstanding devices, front and rear frames each comprising vertical end bars and a horizontal upper bar, ears carried by the

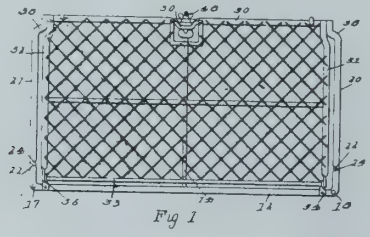
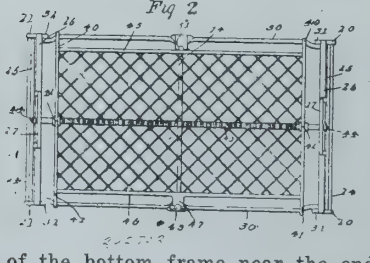


Fig 1

Fig 2



parallel bars of the bottom frame near the ends thereof, a rod connecting the vertical bars of the front and rear frames and effecting pivotal connection with the aforesaid ears, engaging devices projecting from the upper corners of the front and rear frames and engaging the upper bars of the end frames from the under side thereof, a middle partition member and means for hingedly connecting the latter with the bottom frame and for detachably connecting the middle partition with the front and rear frames, and a collapsible top frame hingedly connected with the upper portion of the rear frame.

In a device of the class described, a bottom frame including upwardly deflected ends, front and rear frames hingedly connected with the bottom frame, and frames hingedly connected with the deflected ends of the bottom frame, engaging devices formed on the upper corners of the front and rear frames and comprising hook members engaging the upper elements of the end frames on the underside thereof, a top hingedly connected with the rear frame and comprising end bars formed in a plurality of sections pivotally connected, a central longitudinal connecting bar effecting the aforesaid pivotal connection, hook members carried by the ends of the central longitudinal bar and positioned to engage the upper elements of the end frames aiding in retaining the latter and in retaining the cover.

* * *

NO. 202656 BOILER FEED MECHANISM

Walter William Davis, Rapid City, South Dakota, U.S.A.

In combination with a boiler and a feed water tank arranged above the water level of the boiler and feeding thereto by gravity, of a connection between the steam dome of the boiler and the top of the tank, a normally spring closed valve for controlling the connection and adapted to be opened by the excess pressure in the feed water tank to connect the steam dome with the tank, a connection between the tank and the boiler and opening into the boiler below the water level, a vent pipe for the feed tank, said last-named pipe and the feed pipe having portions adjacent, a common casing interposed in the said pipes, a check valve in the casing for preventing return of the water from the boiler to the tank, a second valve in the casing for controlling the vent pipe and connected with the check valve to close when the check valve is opened and to open when the check valve is closed, and a spring acting normally to open the vent pipe valve and to close the check valve.

In combination with a boiler and a feed water tank arranged above the water level of the boiler and feeding thereto

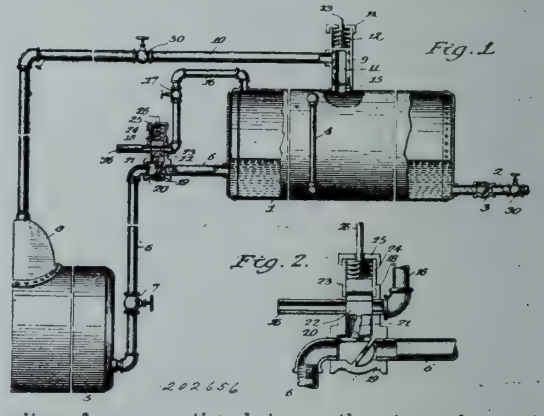


Fig. 1.

Fig. 2.

by gravity, of a connection between the steam dome of the boiler and the top of the tank, a normally spring closed valve for controlling the connection and adapted to be opened by excess pressure in the feed water tank to connect the steam dome with the tank, a connection between the tank and the boiler and opening into the boiler below the water level, a vent pipe for the feed tank, said last-named pipe and the vent pipe having portions adjacent, a common casing interposed in the said pipes, a check valve in the casing for preventing return of the water from the boiler to the tank, and a second valve in the casing for controlling the vent pipe and connected with the check valve to close when the check valve is opened and to open when the check valve is closed.

In combination with a boiler and a feed water tank arranged above the water level of the boiler and feeding thereto by gravity, of a connection between the steam dome of the boiler and the top of the tank, a normally spring closed valve for controlling the connection and adapted to be opened by excess pressure in the feed water tank to connect the steam dome with the tank, a connection between the tank and the boiler and opening into the boiler below the water level, a check valve for preventing return of the water from the boiler to the tank, a vent pipe for the tank, a valve for controlling the vent pipe, and a connection between the said valve and the last-named check valve for opening the valve when the check valve is opened and for closing the valve when the check valve is closed.

* * *

NO. 202790 STEAM BOILER INSTALLATION

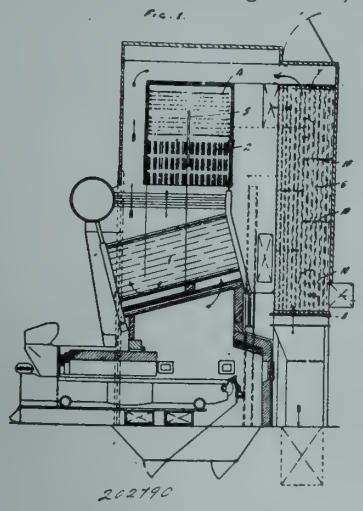
The Babcock & Wilcox, Ltd., assignee of James Kemmel, both of London, England.

The combination with a steam generator, of a superheater and a steam reheater over which the products of combustion pass in succession after passing over water heating surface of the steam generator.

The combination with a steam generator, of a superheater and a steam reheater arranged to be contacted with succes-

sively by the waste gases, and baffling arranged in direct the gases over a portion of the heating surface of the boiler, thence over a portion of the superheater, thence over a portion of the reheater and thence back in succession over the reheater, superheater and boiler heating surface.

The combination with a steam generator, of a super-



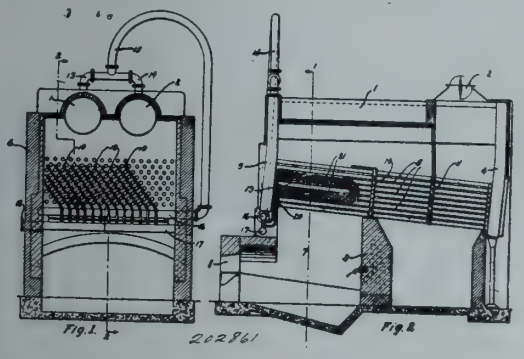
heater and a steam reheater over which the products of combustion pass in succession after passing over water heating surface of the steam generator, and means for varying the amount of surface of the reheater which is contacted with by the circulating gases.

* * *

NO. 202861 WATER TUBE BOILER SUPERHEATER

The Locomotive Superheater Co., assignee of Benjamin Brodio, both of New York City, New York, U.S.A.

In a boiler, the combination of two parallel water logs, water tubes connecting them and arranged in spaced rows, a pair of parallel superheater headers adjacent to one of the water legs and arranged transversely to the water tubes and



opposite the spaces, a sub-header secured to one of the headers and extending into the space between two rows of water tubes and adjacent to the water leg, a second sub-header secured to the other header and extending into the space on the side of the first away from the water leg and not as far as the first, both sub-headers being of a diameter substantially equal to the space between the rows of tubes, and a plurality of tubular superheater elements attached to the pair of sub-headers and extending into the space between the water tubes, the elements being of materially smaller diameter than the space.

In apparatus of the class described, the combination of a boiler comprising a plurality of upright water tubes, a setting comprising a front and a top wall, a furnace, an arch over the furnace extending from the front wall inward and terminating some distance from the water tubes, a second arch above the first and extending from a point near the water tubes toward the front wall and terminating short of it, a partition extending upward from the inner end of the upper arch and terminating short of the upper wall of the setting, a superheater located in the space between the front wall and the partition, and a damper adapted to regulate the size of the opening above the partition.

In apparatus of the class described, the combination of upright water tubes, a setting comprising a front wall parallel to the water tubes and a top wall, a furnace, an arch over the furnace extending from the front wall inward and terminating some distance from the water tubes, a second arch above the first and extending from a point near the water tubes toward the front wall and terminating short of it, the front wall having an opening opposite the space between the two arches, and adjustable means accessible through said opening to restrict the passage between the two arches.

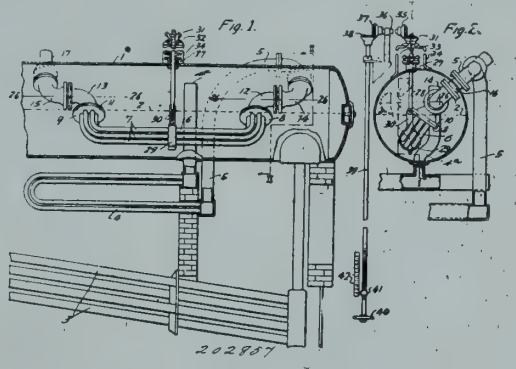
NO. 202857 APPARATUS FOR REGULATING THE TEMPERATURE OF SUPERHEATED STEAM

The Locomotive Superheater Co., assignee of Benjamin Brodio, both of New York City, New York, U.S.A.

In apparatus of the class described, the combination of means for conducting superheated steam, a chamber containing water, a pipe communicating with said means, and automatic means for altering the relative position of the water level and said means in response to the temperature of the steam flowing through the pipe.

In apparatus of the class described, the combination of means, located within the steam and water drum of a boiler, for conducting superheated steam, a pipe into which said means deliver steam, and automatic means for lowering said first-named means into the water or raising it from the water into the drum in response to temperature conditions in the pipe.

In apparatus of the class described, the combination of two elbows each with one end flared, a ring secured in each of said flaring ends, the inner surfaces of said rings being segments of spheres, a second pair of elbows, a ring secured on the outside of each adjacent to one end, the outer surfaces of said rings being complementary to and engaging respectively with the inner surfaces of the first-named rings, means to keep the two second-named rings in engagement



with the two first-named rings, a plate secured to each of the second pair of elbows, tubes connecting said plates, the two flexible joints thus formed being in alignment so that the two pairs of rings lie parallel to each other.

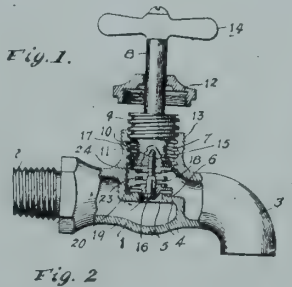
* * *

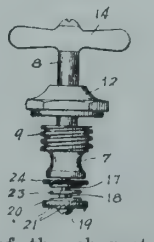
NO. 202658 VALVE RESEATING TOOL

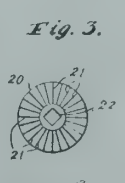
John Joseph Donahue, Centerville, Massachusetts, U.S.A.

In a device of the character described, the combination of a valve stem, of a valve seat grinding element, and means for connecting said grinding element directly to the valve stem.

In a device of the character described, the combination of a stem, a valve seat grinding element mounted on said stem and adapted to bear against a valve seat, and a spring for holding said valve grinding element in engagement with said valve seat.







In a device of the character described, the combination with a valve stem threaded into a valve casing and having a threaded hole in one end thereof of a screw adapted to be threaded into the said hole and having a polygonal shank, a valve seat grinding element having a polygonal opening correspondingly to said polygonal shank and mounted on said polygonal shank of the screw, and a spring mounted on said screw and interposed between said adjusting nut and said valve seat grinding element.

CONDENSATION AND CONDENSERS

(Continued from page 17)

The first coil in the series is subjected to a colder blast of air than are those that are set back in the stack. The result is that the condensation takes place so rapidly that it causes the water to back up at times from the returns of other rads on the series. In this first coil there is always a rapid drop in pressure, so rapid, indeed, that at times there is not sufficient force in the incoming steam to drive the condensation from the radiators into the returns.

Of course, the partial vacuum pulls as hard on the steam supply as it does on the return, but at the same time it must be understood that the steam supply may be inadequate to fill the entire space of a rapidly condensing radiator clear to the return openings. Thus, when the pressure drop of the steam in the radiators becomes less and less the farther these radiators are moved from the cooling temperature of the incoming air the pressure on the return of the other radiators that are set at the rear is so much greater than those at the front, the back pressure may be great enough to drive the water from the warm returns forward to the low pressure areas of the first radiators. Therefore, in a very deep stack it is, at times, necessary to pipe the front and rear sections of a stack in such a way as will make of them separate and distinct units.

The area of the feed inlets of rapidly condensing radiators must be increased over those that are supplied to slow condensing radiators.

If the feed inlet is so small that a sufficient volume of steam cannot enter the radiator, it will be necessary to carry high pressure so that the radiator space may be always filled with steam.

Return of Condensation

Condensation is returned to heating boilers by gravity, pumps, or return traps.

For a suitable illustration of how the condensation may be returned from radiators to the boiler, we shall again refer to the heaters used in ventilation work.

Because of the rapid rate of condensation in "vento" radiators it is advisable to have the lowest part of these heaters set at least 2 feet above the water level of the boiler, or more if possible. The returns should be of a large size and fitted with swinging check valves. This is for a gravity return.

If a return pump is used it should be so arranged that it will automatically start and stop as the water level in the receiver varies.

If the steam used in heaters is at boiler pressure, the drips should be connected directly to the receiver, and no vapor pipes should be used. If the pump is placed at a rather low level it will handle the hot water without the assistance of a trap. No vapor pipes will be required, and thus a considerable saving in steam will be effected. However, if several heaters are to be connected to one receiver they must all be separately trapped.

Condensing Engines

As it is altogether likely that some of our readers may have occasion to do work in an engine room, we think it well to make some reference to condensing engines.

A condensing engine differs from a high-pressure engine in that the exhaust steam, instead of escaping from the cylinder direct to the air, is led into an exhaust chamber where it is condensed.

The exhaust steam is condensed in the condensing chamber by the cooling effect of jets of water. The water is afterwards removed by a pump.

Now, just as we have already pointed out, the condensing of the steam creates a partial vacuum within the space where that steam is condensed. Since this vacuum removes a large part of the back pressure from the exhaust side of the piston, the engine will work under a given load at a lower pressure than when the cylinder exhaust must work against atmospheric pressure.

Condensers effect a reduction in the pressure of steam required per horsepower, and consequently a proportionate reduction in the quantity of fuel.

It is not only in the gain of an increased power by reason of the vacuum on the exhaust side of the piston that makes the use of a condensor advisable, but also it is because of the reduction in costs of fuel, of boiler feed-water, and the boiler heating surface required.

The reason that much less boiler-heating surface is required for a condensing engine than for one of the high-pressure type is that the condensing engine requires less steam per horse-power.

We have referred to the condenser as being a chamber wherein the exhaust steam is condensed by a jet of water, but jet condensors are not the only type that may be used; there is another type —that known as a surface condenser.

We shall first deal with the jet type and then afterwards write of surface condensers.

Jet Condensers

The three types of the jet condensers are: The induction condenser, the air-pump condenser, and the barometric-column condenser.

In these condensers the exhaust steam from the engine enters by way of the top of the condensing chamber. It is there condensed by sprays of injection water. The quantity of water is varied with the load on the engine.

To prevent the accumulation of air and water in the condensing chamber an air pump is provided so that the air and vapor may be removed with the condensed water and condensed steam.

When the pump is arranged so that only the air and vapor are removed by the pump, the pump is known as a dry air pump.

Jet condensers are not very large, and therefore take up but little floor space.

Jet condensers can be started in advance of the engine so that a vacuum is obtained at the starting of the engine.

Surface Condensers

With surface condensers there are separate discharges of the condensing water and the condensed steam.

The cooling water passes through a number of tubes which are surrounded by the exhaust steam.

The cooling water travels through the tubes at a rate of from 400 to 700 feet a minute.

An air pump is used to pump the condensed steam, and a circulating pump is used to drive the cooling water through the tubes.

The air pump must be set below the condenser.

When the condensed water is to be used for the boiler feed it will be necessary to use some type of grease separator. The separator should be connected between the condenser and the engine exhaust, so that it will not be necessary to purify the water after it leaves the condenser.

Unless the grease extractor is of a highly efficient type there is almost sure to be some accumulation of cylinder oil on the steam side of the condenser tubes.

The condenser should be cleaned at least once a week. A solution of sal soda or a gallon of refined petroleum when injected occasionally into the condenser with the exhaust steam will help keep the condenser clean.

Fitting

In a future article we intend to give some specific information regarding the setting up of condensers.

We shall then describe in detail how the various condenser fittings should be connected. A certain amount of information must be left until presented with that article, and for the time being we shall only refer to certain precautions that should be taken when the fitter is making condenser connections.

We can readily understand that when a high vacuum is obtained in a condenser great care must be taken so that all joints are perfectly airtight. All joints should be tested with the flame of a lighted candle.

The leaks should be closed by the taking up of all bolts and nuts and by the coating of the joints with asphaltum varnish.

The vacuum gauge should be connected close to the exhaust pipe at the low-pressure cylinder of the engine. If the vacuum gauge should be connected close to the condenser, it may show—because of possible leaks in the exhaust pipe—a much better vacuum than actually is obtained at the cylinder of the engine.

Water

Because the steam is condensed by the cooling agency of water, the quantity and temperature of the water required must be determined by the total heat and weight of the steam.

Generally speaking, the quantity of injection water, at a temperature not exceeding 70 degrees, will be in amount

(Continued on page 40)

Planning Business as You Would a Job

Estimate of Plumbing and Heating Based on Definite Information —Business Can Be Planned in the Same Way—Chart Divides Plumbing Business Into Four Sections.

From T.E.B. Monthly Service Bulletin

WHEN you are called in by an architect to estimate the cost of the plumbing and heating of a building, would you attempt to estimate the job from a verbal description given by the architect?

You would laugh at him, wouldn't you? You would insist upon a plan, and rightfully so. You must necessarily know just what will be needed, the location of every fixture and how many; the kind of workmen needed, etc. Only with such information can you intelligently estimate the work and supervise it after the job is awarded you.

Now, then, the above being true, it is just as essential to plan your business in the same way.

Herewith is shown a plan and specification for a fair sized plumbing and heating establishment. This is called a chart. Charting has come into prominence during the last few years because business men have found that a definite plan and a definite specification must be made on paper before the idea can be successfully worked out. Such procedure eliminates costly mistakes, stops leaks and increases efficiency.

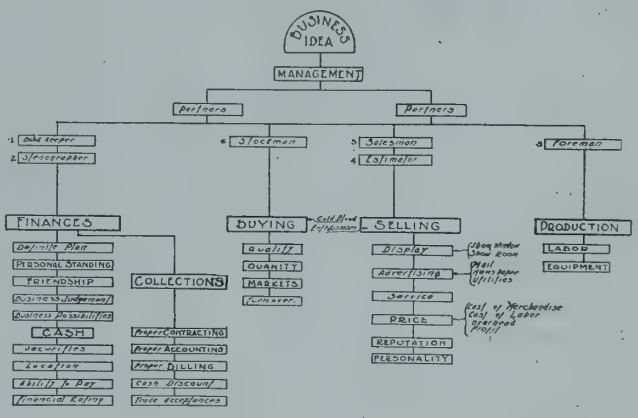
The diagram divides the plumbing and heating business into four distinct sections, namely, **financing, buying, selling** and **production.** Each of these heads have been sub-divided into what might be termed laterals, each running into the main subject or stack, as we would term it in this trade.

Unless the proper connection is made between the laterals and the main stack, a leak is sure to occur and this leak will damage your business just as a leak in a plumbing or heating job would damage the building.

The foregoing clearly shows how closely all classes of business interlock one with the other. A very prominent business man has said that a man cannot know all that he should know about his business and its possibilities unless he puts his business on paper. The best way of placing a business on paper is to draw an outline of it providing a space for each of the essentials. Then connect them up with the proper department.

Your business may differ somewhat from the chart we have reproduced, but it is a safe bet to say that when you put your business on paper, as suggested, you will learn that many subjects which should have serious consideration have previously escaped your attention.

As an example, let us briefly discuss each of the subjects shown in the chart reproduced, by asking questions pertaining to each of them. We can only touch upon each item in a very brief manner, but as you study your own chart you will find many other questions that need to be answered.



The first character in the chart represents the business idea. This is connected with the management and the management is connected with the various parts of the business. In turn, each part of branch has some one in charge, whose duty it is to see that each department is operated in accord with the manager's plan.

Where partners exist in the business, each has charge of separate sections. One the financing and buying, the other the selling and production.

FINANCING

What do you know about financing? Have you a definite sum allotted for the operation of your business? Is this sum based on the volume of business you do, and does it represent the proper turnover? Have you fixed a definite amount of money to be borrowed from the bank? Have you determined the amount of money you can afford to have outstanding at the end of each month? Have you a fixed plan for taking advantage of cash discounts? Have you worked out a definite plan to build up the other classifications under Financing?

PERSONAL STANDING

Is your standing in your community all that would have it be? Do you keep your word with your jobber and your banker? Are you developing your reputation as a man of your word and is the society you keep a credit to your personal standing? Are your habits detrimental to your credit?

FRIENDSHIP

Have you a definite plan for cultivating friendship? Do you treat your customers, traveling men, and other acquaintances with the same courtesy that you would want other people to extend to you? Do you know when and how to use friendship to an advantage?

Continued on next page

Minister Plans Tour to Explain Taxes

Minister of Inland Revenue to Meet Boards of Trade—Banks to Sell Stamps—Want Closer Co-operation of Merchants.

SUBSEQUENT to the announcement elsewhere in this issue that the use of stamps to collect the new tax is to be commenced on November 1 comes the announcement that the Minister of Customs and Inland Revenue, Hon. R. W. Wigmore, is planning a tour of several towns and cities in order to remove many of the misapprehensions now existing in regard to the luxury taxes.

The plan will be to arrange meetings through the Board of Trade in each of the larger centres, and have the merchants present to explain their difficulties and to have misunderstandings cleared away. In this way it is hoped to secure a greater measure of co-operation from the merchants throughout the country, and thus bring in greater returns from the new taxes.

The stamp system of collecting the tax will be inaugurated on November 1. Merchants will then attach stamps for the amount of luxury tax to the package in which the wrapped goods are sold.

The details of the method of affixing and cancelling stamps used for this purpose have been worked out, and it is hoped to have a plentiful supply of special stamps of different denominations available to the dealers in plenty of time for starting the new system on the above date.

The stamps will be sold through the banks in most cities, but in some of the larger centres, such as Montreal and Toronto, it is likely that an office will be opened by the department, where the sales of these stamps will be taken care of. The stamp method is expected to provide a much better means of checking sales, and also to bring in the returns from the luxury taxes much more quickly than under the present system.

HOUSING SCHEME LIKELY TO BE DELAYED

Montreal.—Owing to the fact that the Provincial Government ideas regarding housing under the government grant scheme conflict with those of the Dominion authorities who have authorized the loan, it is very likely that none of the $1,000,000 alloted to Montreal will be used in the near future, if at all.

"I doubt if there will be any building done this year under the scheme owing to the disapproval of the Federal Government of the Provincial law regarding two-flat houses," said Commissioner Verville, a member of the Housing Commission. "There is no working man that can afford to build a house costing $4,500 and occupy it only for himself. The Federal law says it may be two storeys or two and a half storeys, but the builder must reside in this himself, and they cannot afford to do that. All of the cities are protesting to Ottawa against this restriction, and the only thing to do is to have the law revised at Ottawa. It seems strange that the law permits a housing company to build flats and sell them, and that to my mind is speculation, whereas it would not allow an individual to build a two-flat house and live in one part while he rents the other to enable him to pay off his load. If the $1,000,000 was granted to housing companies they would buy a big stretch of land, build flats and sell them, and make profit out of them. Although the profit is supposedly limited to 6 per cent., there are many ways in which what might be considered as profits are shown as something else. I am against lending money to companies to build flats where individuals cannot have it. I am getting half a dozen applications for loans every day. Of course, if any of the applicants want to build semi-detached houses or cottages for their own occupation only, the money will be loaned to them, but as I say there are no working men who can afford to do that and it was supposedly for them that the Housing Act was initiated."

It will be disappointing to many that this work has been dragging along in the manner it has during the Summer, and it is an added disappointment now that the work will be definitely shelved for the time being. At the same time there are indications that other work of large proportions will be undertaken at an early date.

BY-LAW TO PROVIDE FOR DRAINAGE WORK

New Liskeard, Ont.—A by-law to provide for drainage work in the Township of Dymond and in the District of Timiskaming and for the borrowing of eight hundred and seventy-two dollars to carry on the work was recently provisionally adopted.

PLANNING YOUR BUSINESS AS YOU WOULD A JOB

Continued from page 31

BUSINESS JUDGMENT

Do you study the traits of other successful business men in order to improve your business judgment? Do you carefully guard the statements that you make, so that your judgment of business matters can be to your credit? Do you think twice before you accept or make a proposition? Do you weigh all matters carefully?

BUSINESS POSSIBILITIES

Do you study carefully the possibilities in the plumbing and heating business? Can you point out these possibilities? Do you try to sell your knowledge of these possibilities to your banker and jobber, so that you might obtain a loan or sufficient credit to develop these possibilities?

CASH

Do you accurately know the actual amount of cash that you have invested in the business? Do you know what portions of your capital represent money that belongs to other people? Do you know when you have too much cash invested?

SECURITIES

Do you know the real worth of all securities that you have to offer and of all securities tendered you?

LOCATION

Do you know the value of a business location? Do you know how to judge the advantages of one location over another? Do you know the advantages of a good location in securing credit?

ABILITY TO PAY

Do you know what effect your "ability to pay promptly" has upon your credit with the bank, jobbing houses, or other sources of credit? Do you know how this information is interchangeable between the various sources of supply? Have you a method of determining your customer's ability to pay?

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

FEWER changes in prices are recorded than usual in plumbing goods and steam-fitting supplies, but indications point to an easier tone on certain lines. Radiators have been advanced in price and new prices are out on closet bowls and combinations. Some higher prices are also announced in iron and steel.

A decline in tin and pig-lead prices has made an easier tone on solder and tendencies appear to be for lower quotations on lead products.

The shortage in many lines is still very acute and appears to be hampering business considerably. A little improvement is reported in a few quarters in the deliveries of some sizes of sheets and plates, but transportation is still reported to be very bad, and little relief in this direction is expected for some time.

The shortage of skelp at the mills is making supplies of pipe very difficult and smaller sizes especially are very scarce.

Canada plate is still very hard to obtain and the demand for stoves and ranges exceeds the supply. Materials for the manufacture of these have been scarce and prices high and little hope of any early reductions in stove prices is given.

From latest reports there is an easier trend to U.S. and English steel markets, and a lower tendency or any readjustments in prices of iron and steel may be the result of a sagging market.

Trade generally is reported fair with chances to do more if supplies become more abundant.

Collections continue to be satisfactory.

QUEBEC MARKETS

MONTREAL, September 30.—A number of materials have advanced in price since the last report appeared. Radiation and boilers have advanced approximately 10 per cent. Iron and some steel bars have also gone higher. Sheets, Canada plates and corrugated iron remain firm as do also eavestrough and conductor pipe. Asbestos products are very firm and while they have not advanced some anticipate that there may be increases in the not distant future. Roofing caps and nails are very scarce and caps have again advanced.

On the other hand there have been some declines. Pig lead and tin having declined, there has been a resultant lowering of price on sheet lead and on solder, as well as on the pig tin and lead. Copper, spelter and antimony are ruling somewhat easier and the market is a quiet one. Valves and compression work are steady and fairly active. Eavestrough and conductor pipe are firm and steady, galvanized sheets still hold high and are quite scarce, while Canada plates will not be available in quantity this fall, it is stated. Wrought iron pipe is scarce. While there has been no change in the price basis of waste or oakum some anticipate reductions, particularly on cotton waste. These may not come for a while, however. Trade, while it might be better, is fair.

Sheet Lead Lower; Solder Price Drops

Montreal.

LEAD PRODUCTS.—Prices have been easing on various products. Sheet lead is a cent per pound lower all around, and this is due to a softening of pig lead prices. If lead continues to decline there is likely to be a revision of price on pipe, although this is unchanged in the meantime. Guaranteed solder is now offered at 35½c per pound and wiping at 30¾c. This is two cents lower than previous quotations and comes as a result of more favorable basis on both tin and lead. Jobbers report a satisfactory demand.

Lead pipe, per 100 lbs.	....	17 00
Lead waste, per 100 lbs.	....	18 00
Note—Lead pipe is subject to a discount of 10%.		
Lead traps and bends		List plus 30%
Lead wool, lb.	....	0 16
Lead sheets, 2½ lbs.	....	0 13
Lead sheets, 3 to 3½ lbs. sq. ft., lb	....	0 12¼
Do., 4 to 8 lbs., sq. ft.	....	0 12
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.		
Solder, guaranteed, lb.	....	0 35½
Solder, strictly, lb.	....	0 33½
Solder, commercial, lb.	....	0 31
Solder, wiping, lb.	....	0 30¾
Wire solder—		
40-60	....	0 34¾
45-55	....	0 37¼
50-50	....	0 39½
Zinc sheets, casks	....	0 16½
Do., broken lots	....	0 17

Valve Lists Steady With Average Sales

Montreal.

VALVES.—Large makers report the sale of fairly round quantities of valves. There has been an ample supply of material for making these and the undertone is steady but unchanged. Plumbers are buying in rather small quantities, there being no desire to overbuy at this time.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	list plus 20%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Soil Pipe Holding Supplies Are Ample

Montreal.

SOIL PIPE, FITTINGS.—Prices are steady and unchanged. There has been a considerable production of the product of late and dealers are well prepared to take care of the demand. At the present time there is little to indicate an early change, but it is probable that any

revision of price will be a favorable one.

Soil Pipe (medium and extra heavy), net.
Do., 2, 3, 5, and 6 in., add 10% to list.
Do., 8 inch, add 20% to list.
Fittings, 4 in., net list.
Do., 2 to 6 in., 20%.
8 inch pipe and fittings, add 20% to the list.

Iron and Steel Bars Move to Higher Basis

Montreal.

IRON AND STEEL.—Prices have firmed, and bar iron and a number of the commoner steel bars are higher in price. Rolling mills have been idle, in some instances for some time, and the surplus stocks have been cleaned up. The outlook for increased production does not seem to be the most favorable at this time, and there is steadiness in the trade for the various products.

IRON AND STEEL.

	Per 100 lbs.
Common bar iron	5 15
Refined iron	6 15
Mild steel	5 30
Band steel	5 30
Iron finish machinery steel	5 35
Sleigh shoe steel	5 30
Tire steel	5 50
Toe calk steel	6 20
Spring steel	6 00
Harrow tooth steel	5 45
Single reeled machinery steel	6 80
Norway iron	15 00
Mining tool steel, per lb.	0 24½

NOTE—3-16" and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

Machinery Cast Firm Old Metals Quieter

Montreal.

OLD MATERIAL.—Prices are, for the most part, quite easy on old material Machinery cast iron has continued to be the feature of the market and high prices are being paid by the buyers, as much as $42 per ton being offered by large factors in Montreal for round tonnage of this. Aside from this one item there has been no feature to report and prices are soft.

Dealer's Buying Prices

Automobile tires	0 01½	0 02
Yellow brass	0 09	0 10
Red brass	0 16	0 17
Light brass		0 06½
Scrap zinc		0 06¼
Lead, heavy	0 06	0 07
Lead, tea		0 03½
Light copper		14 50
Heavy copper		18 00
Wrought iron, No. 1, per gr. ton	19 00	20 00
Malleable scrap (ton)		22 00
Pipe scrap (ton)		14 00
Stove plate, per ton		30 00
Heavy melting steel	24 00	25 00
No. 2 busheling	10 00	12 00
Boiler plate	17 00	18 00
Machinery cast	40 00	42 00

Trough and Conductor Pipe; Remain Scarce

Montreal.

TROUGH, CONDUCTOR.—While the scarcity of sheets continues there is unlikely to be improvement in the eavestrough and conductor market. This is a possibility of the future, according to manufacturers, and will be directly dependent upon the trend of markets on sheets. There is a seasonably good demand for the popular sizes of both trough and pipe.

Oakum Holds at Price of Nine-fifty

Montreal.

OAKUM.—Supplies of oakum are quite ample, and there is quite a large demand, although this is not excessive. While the basic price of $9.50 is still being quoted it would not be surprising if somewhat lower prices are current in the not distant future.

Canada Plate Demands Still Exceed Supplies

Montreal.

CANADA PLATES.—The trade cannot be given any assurance of an early improvement in the situation as regards supply of this seasonable product. The importers constantly report that they will have little or nothing to offer in the way of supplies this fall. In the meanwhile there is a growing demand for stove pipes and this will increase as the colder weather approaches. Prices are nominal under the decided scarcity.

Small Sizes Pipe Still Hard to Get

Montreal.

IRON PIPE.—Jobbers report a scarcity still of iron pipe in certain sizes. There has been a generous demand for the small diameters and with certain fall work pending there will continue to be quite a call for this. Skelp scarcity is still manifest. Prices have not been altered but there is a feeling in the trade that these have reached their crest. It is hardly to be expected that quotations will be lower for some time, but improvement may come ere long in the matter of supply. This would necessarily help in producing more favorable price basis.

LIST NO. 46
Standard Buttweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.05	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$ 38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2.66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4.39	4.39	5.21

Fitting Lists Hold; May Not Be Higher

Montreal.

PIPE FITTINGS. — Manufacturers state that there is still a big demand for fittings. Malleable and cast goods are firm and steady, and while there has been no definite improvement in the matter of supplies it is likely that there will be some change for the better. The quiet condition of the market as regards automobile manufacture will doubtless relieve the great strain that has existed on malleable products generally.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	Plus 50%
Do., 2½-in. and larger	8%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%
Couplings, 4½" and larger	Net list

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Some Improvement Probable on Sheets

Montreal.

SHEETS AND PLATES.—While the fall demands are evident, there may be little immediate improvement in the undertone on sheets. Supplies have arrived from abroad but these have not lasted for any great length of time. Jobbers say that they are getting, in some cases, more than market quotations, and buyers seem glad to get the stock. It will be a while before desired quantities are to hand but there is now evidence of some improvement within a comparatively short period. Canada plates still hold firmly and are scarce.

BLACK SHEETS—	
10 gauge	9 25
12 gauge	9 30
14 gauge	9 35
16 gauge	9 45
18-20 gauge	9 90
22-24 gauge	9 95
26 gauge	10 00
28 gauge	10 10
GALVANIZED SHEETS—	
U.S. Standard—	
10¾ gauge	13 80
28 gauge	13 30
26 gauge	12 35
22 to 24 gauge	12 10
20 gauge	11 85
18 gauge	11 85
16 gauge	11 60
14 gauge	11 35
12 gauge	11 20

English Standard—		
28 gauge	13 00	13 50
26 gauge	12 75	13 25
24 gauge	12 15	12 65
22 gauge	11 80	12 30
18 and 20 gauge	11 35	11 85

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Enamelled Ware Is Steady But Quiter

Montreal.

ENAMELLED WARE. — Sales of enamelled ware have fallen off somewhat. The trade is buying what they need for present use but are showing no disposition to overbuy. This is likely to continue. In the meanwhile stocks are ample and if there is any change it is unlikely to be of a firming nature. The advance that was made a short while ago will likely carry the line along now, and

this may mean that the crest of the market has been reached.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide	$40 75
Bath tubs, 5½ ft.	45 32
Lavatories—	
17 x 10" Apron F139 or P4045	12 15
18 x 24" Apron F154 or P3845 or P3847	18 70
18 x 21" Apron F169 or P4205	13 97
18 x 21" Roll Rim F197, F199 or P4655-6	12 21
17 x 19" Roll Rim F241 or P4345	9 95
Sinks, roll rim, 18 x 30 in.	18 26

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 94	$5 88	$5 83
18 x 30	6 82	7 18	6 71
20 x 30	7 81	7 75	7 70

Steel Baths with Steel Rim—	
4 ft. 6 in.	$17 87
5 ft.	17 87
Enameline Baths with Steel Rim—	
4 ft. 6 in.	$17 32
5 ft.	17 32
5 ft. 6 in.	17 87
6 ft.	19 25

Range Boiler Prices Have Been Maintained

Montreal.

RANGE BOILERS.—Prices have been unchanged during the past few weeks. Manufacturers have been in a position to keep themselves supplied with the gauges of plates used in making these, and in this respect there has been less scarcity than on many other products made of sheets. The movement is steady and in fact has been excellent all season.

Range Boilers—	Standard	Ex.Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Sales of Asbestos Products Total Big

Montreal.

ASBESTOS GOODS.—Makers state that they have had even more demand for their products than they are able to supply. There is a strong undertone to the market at present and no easing of prices is looked for in producing quarters. The movement is bound to be active for some weeks yet, at least, and markets will, under these circumstances, be likely to hold steady and firm. There was some talk, recently, of advances being made on some lines.

Cotton Waste Ruling With Softer Undertone

Montreal.

WASTE.—The somewhat quiet condition of the market, together with a fairly complete stock of various grades of waste, coupled with the easing in the undertone on cotton products, seems to be softening the undertone on these lines. At the same time jobbers say that they are not looking for changes of an extensive nature, but that there may be lower prices later, and that these will likely come into effect gradually.

WASTE		
Cream, Polishing	....	0 28
WHITE		
XXX	....	0 23
XX	....	0 21½
X	....	0 20
Japanese	....	0 17
XXX	....	0 24
XX, grad.	....	0 22½
XLCR	....	0 21
X Empire	....	0 19½
X Press	....	0 17½
X Special	....	0 15½
XC	....	0 18½
COLORED		
No. 1	....	0 18
No. 7	....	0 16
No. 1A	....	0 14½
No. 1B	....	0 12½
Fancy	....	0 19
Lion	....	0 17
Standard	....	0 15
Popular	....	0 13
Keen	....	0 11

Above lines subject to trade discount for quantity.

Fair Fall Demand For Corrugated Iron

Montreal.

CORRUGATED IRON.—Prices have, in accordance with the tendencies of the market on sheets, been held firmly. There is a steadily fair demand for the product and doubtless more sales would be made if the prices had not reached such heights. Manufacturers express their conviction that any improvement in price or stocks will be deferred many weeks yet.

Corrugated Sheets—	Per 100 lbs.
10¾	14 30
No. 28 gauge	13 80
No. 26 gauge	12 85
No. 24 gauge	12 60
No. 22 gauge	12 60
No. 20 gauge	12 35
No. 18 gauge	12 35

Quiet Condition Surrounds Rope Market

Montreal.

ROPE AND CORDAGE.—There is little change in the rope situation. The demand is restricted at the present time and manufacturers think that business will improve in the near future. There is nothing at present to indicate a reduction in the basis on either manilla or sisal ropes, although competition from outside points on inferior grade fibres has been quite noticeable. Pure manilla basis is 35½c, New Zealand, Beaver, and similar grades of manilla 28c and sisal 22½c per lb.

Roofing Cap Prices Are Marked Higher

Montreal.

ROOFING CAPS.—An advance to $15 per 100 lbs. has been made for roofing caps. These are very hard to obtain and in view of the fact that felt roofing nails are also very scarce the situation is not promising. Jobbers state that they are almost sold entirely out of stock of both kinds.

Ten Per Cent. Advance on Radiators; Boilers

Montreal.

RADIATORS.—An advance of approximately 10 per cent. has been made in hot water and steam radiators. This is something which is more or less anticipated in trade circles and is due to the increase in the price of pig iron, freight rates and higher labor charges. Round hot water boilers are now on a 40 per cent. discount basis, square series 9-13 water, 34 per cent.; steam, 34 per cent.; wall radiators, 7, 9, and 12 ft., $1.05; 5 ft., $1.15; with a discount of 34 per cent. on both water and steam. The market is very strong and demand has been fairly good for several weeks past.

"Impossible" For Lower Stove Prices?

Montreal.

STOVES AND RANGES.—"Impossible for prices to be lower," is the general verdict of the makers. A very strong undertone characterizes the stove and range market and same condition applies to heaters. Manufacturers have been very busy in turning out supplies to fill orders in hand for fall business. As a matter of fact the demand, as regards heating stoves, has been greater than the available supply in some cases. Dealers who have deferred placing their initial orders will have no little difficulty in obtaining necessary supplies, according to recent advices. While no advances have been registered in stoves or ranges the undertone is very strong. Pig iron, heavy steel plates, and wages are dominating factors in the present strong market.

Pig Lead Weakening Ingot List Very Quiet

Montreal.

INGOT METALS.—The market is softer all around and one or two ingots are reduced in price. Pig lead, the most important item in the list as affecting the trade, has been easing off considerably. Spelter is easier and tin and copper are probably due for an early reduction.

LEAD.—There has been a softening of the undertone on this for some time, with a resultant price reduction, the price here now averaging 9¼ to 9½ cents per lb.

TIN.—Further reductions have been made in tin and this can be had for 53-54c per pound. The present state of the sterling exchange market is a contributing factor.

SPELTER.—Prices are easing off on this and the metal may be bought at 9½ to 10½c according to grade. There is not much demand.

COPPER.—Both New York and London markets are ruling easier, and this has reached the local market. Quotations made here are as low as 23¼c for electrolytic and 23c for casting. Some report a scarcity of casting grade.

ALUMINUM.—At 37 cents this is steady and uninteresting, the demand being limited.

ANTIMONY.—This is inactive and is quoted at 10 to 12c per lb.

ONTARIO MARKETS

TORONTO, Sept. 30.—Not many price changes have been recorded since the last issue of Sanitary Engineer among plumbing and steamfitting supplies, and the main feature is the alteration in the discount on steam and hot water radiators, which are advanced in price.

New prices are announced on closets and combinations, which are approximately ten per cent. higher.

Slightly lower quotations are given on bar and sheet lead, and also on solder, although lead pipe and traps and bends have not been affected.

In ingot metals tin and spelter have had a downward tendency, but other metals have been firm.

Iron and steel continue very scarce in the form of bars and angles and in pipe. The shortage of black and galvanized sheets and plates is still very acute and very little improvement is reported.

Stove manufacturers are still experiencing a difficulty in getting raw materials, and cannot keep pace with the demand for stoves and ranges.

Pipe fittings show no improvement and the shortage is still very great. The demand generally for all classes of plumbing goods is greater than the supply, and dealers in galvanized goods, metallic roofings, Canada plates, pipe and fittings report that they have continually to turn down orders.

Cotton waste and plumbers' oakum are firm and unchanged.

The demand for asbestos products continues good.

Iron and Steel Pipe Supplies Still Scarce

Toronto.

PIPE, BLACK AND GALVANIZED.—Supplies of wrought iron and steel pipe continue very scarce and the demands exceeds the supply and no improvement is observed in deliveries. The mills are still very much behind with orders and report difficulty in obtaining sufficient skelp.

Prices are very firm and list No. 46 is still being used.

Quotations are the following:

Standard Buttweld Pipe
List No. 46
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	23.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.75	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2.66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4.39	4.39	5.21

Closet Bowls Latest Quotations

Toronto.

CLOSET BOWLS AND COMBINATIONS.—A fairly good demand is being experienced for these goods and the following are latest prices on standard outfits:

Closet, standard outfit	$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00
Do., wood strip seat and cover	3.75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Malleable Pipe Fittings Are Scarcer

Toronto.

PIPE FITTINGS.—No improvement in the supply of pipe fittings is recorded and malleables are especially low in stocks. As in pipe the demand lately has exceeded the supply and shortage of raw material is said to hamper production. Quotations stand unchanged, as follows:

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to ²-in.	Plus 50%
Do., 2½-in. and larger	8%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%
Couplings, 4½-in and larger	Net list

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Lighter Gauges of Sheets Especially Scarce

Toronto.

SHEETS, BLACK AND GALVANIZED.—Sheets are still a very scarce article, and though some of the heavier gauges are said to have been a little easier to obtain this week or so the lighter gauges are quickly absorbed as they appear on the market. 10¾ oz. is reported to be especially scarce. Prices are firm and are largely nominal. Quotations are given below:

BLACK SHEETS

14 gauge	$11 35
16 gauge	11 50
18-20 gauge	11 80
22-24 gauge	11 85
26 gauge	11 90
28 gauge	12 00
3-16 inch plate	9 75
¼-inch boiler plate	....

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier.	Apollo.
10¾ oz.	12 50	13 25
U.S. 28	12 70	12 85
U.S. 26	12 40	12 55
22 and 24	12 25	12 40
18 and 20	11 95	12 10
16	11 95	12 10
12 and 14	11 20	11 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Stove Demand Exceeds the Supply

Toronto.

STOVES AND RANGES.—Stove manufacturers report that they have experienced a difficulty in keeping pace with the demand for stoves and ranges this fall. Some manufacturers state that they have been obliged to stop taking orders for some lines. Shortage of material with lessened production are given as the reasons. The combined heating and cooking stove of the Quebec heater type with coal grate and with oven has had a good demand and is very popular with people with a limited amount of space. Gas ranges and stoves have been in good demand also and stocks of these are very scarce. Prices are firm and unchanged.

Higher Priced Radiators; New Discounts

Toronto.

RADIATORS.—Higher prices are in effect on radiators. The discount on the hot water radiator has been changed from 40 per cent. to 34 per cent. and the steam from 41 per cent. to 35 per cent.

The new discount on wall radiators is also 34 per cent. Lists are as follows:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 2 3in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Disount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

Metallic Roofings Have Good Demand

Toronto.

METALLIC ROOFINGS.—The demand for metallic roofings, metallic shingles and sidings has been greater than the supply and manufacturers have been handicapped by the scarcity of raw materials.

Reports of orders from six to twelve months old are common and conditions are showing very little signs of improvement.

Dealers state that they have still to pay a premium for delivery of sheet metal and report their stocks to be very low.

Prices are unchanged.

Stove Pipes and Elbows Hard to Procure

Toronto.

STOVE PIPES AND ELBOWS. — Stocks of stove pipes and stove pipe elbows are almost non-existent and Canada plate is still in a state of acute shortage. Various kinds of black sheets and even galvanized are being cut up to meet the demand.

Soil Pipe and Fittings Firm But Unchanged

Toronto.

SOIL PIPE AND FITTINGS. — Although there is apparently not the same shortage in soil pipe or soilpipe fittings that there is in some sizes of wrought iron pipe there is a difficulty in getting supplies of raw material, due largely to transportation, it is stated.

Prices are unchanged and quotations are as follows:

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, add 10% to list.
4-inch, net list.
8 inch, add 20% to list.
FITTINGS—
2 to 6 inch fittings, 20% discount.

Lead and Zinc Products Prices Easier

Toronto.

PRODUCTS OF LEAD AND ZINC.—Fairly good business and rather easier prices are reported on lead and zinc goods. No shortage of any particular line is in evidence and prices do not vary much. Little different quotations are noticed on solder in various quarters but this product is apt to be variable.

Quotations on the principal lines are as below:

Lead pipe, list, per lb.	....	0 17
Lead waste pipe, list, per lb.	....	0 18
Do., over 8 in., list, per lb.	....	0 19
Lead traps and bends	....	add 30%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	....	0 12¼
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.		
Solder, wire, lb.	....	0 41
Solder, strictly, lb.	0 35	0 36
Solder, commercial, lb.	0 31	0 33
Solder, guaranteed, lb.	....	0 37
Solder, wiping, lb.	0 30½	0 33
Zinc sheets, per lb.	....	0 19

Boiler Plates and Tubes Stocks Very Low

Toronto.

BOILER PLATES AND TUBES.—Stocks of these are very low still and deliveries very slow. Plates are said to be fairly abundant at the mills, but transportation remains the chief difficulty. Cars are scarce and though a slight improvement was recorded across the border recently, it has not been maintained or conditions much improved locally.

Corrugated Sheets Still Scarce

Toronto.

CORRUGATED SHEETS.—The shortage of supplies is still very acute in some gauges. More business could be done if jobbers could get supplies. Prices are ruling very firm.

Prevailing quotations are as follows:

Corrugated Sheets—		Per 100 Sq. Ft.
No. 28 gauge	....	12 00
No. 26 gauge	....	12 75
No. 24 gauge	....	18 75
No. 22 gauge		22 25
No. 20 gauge	....	26 50
No. 18 gauge	....	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Enamelled Wares Hold Firm

Toronto.

ENAMEL WARE. — Following the advance noted in the last issue of Sanitary Engineer, prices of enamel wares have held firm. The demand for most lines is said to be fair and supplies, though far from excessive, are fairly plentiful.

The following are quotations on standard lines:

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide	$40 75
Bath tubs, 5½ ft.	45 30
Lavatories—	
17x10" Apron F139 or P4045	12 25
18x24" Apron F154 or P3845 or P3847	18 70
18x21" Apron F169 or P4205	14 00
18x21" Roll Rim F197, F199 or P4655-6	12 20
17x19" Roll Rim, F241 or P4345	9 95
Sinks, roll rim, 18x30 in.	18 25

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 95	$6 00	$5 85
18 x 30	6 85	7 15	6 70
20 x 30	7 80	7 75	7 70

No Changes in Range Boiler Prices

Toronto.

RANGE BOILERS.—No change is announced in prices, but the continued scarcity of galvanized sheets and plates is causing these articles to be more difficult to procure than they were. The heavier gauges appear to be more abundant than the lighter.

Prices rule firm and are as follows:

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Valve and Bibb Prices Hold Without Change

Toronto.

VALVES AND BIBBS.—Compression goods, valves and cocks are firmly held without change. No particular scarcity is reported in these goods and the demand continues fairly good.

Quotations on principal lines are as follows:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Do., Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C.	Net
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	list plus 20%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

No Changes in Cotton Waste

Toronto.

COTTON WASTE.—Although there is an easier tendency reported in the cotton market no change has yet been made in waste prices which are given below:

WASTE		
Cream, Polishing	....	0 28
WHITE		
XXX	....	0 23
XX	....	0 21½
X	....	0 20
Japanese	....	0 17
XX, grad.	....	0 22½
XLCR	....	0 21
X Empire	....	0 19½
X Press	....	0 17½
X Special	....	0 15½
XC	....	0 18½
COLORED		
No. 1	....	0 18
No. 7	....	0 16
No. 1A	....	0 14½
No. 1B	....	0 12½
Fancy	....	0 19
Lion	....	0 17
Standard	....	0 15
Popular	....	0 13
Keen	....	0 11

Above lines subject to trade discount for quantity.

Fair Demand For Plumbers' Oakum

Toronto.

PLUMBER'S OKUM.—No change is recorded in plumber's oakum. The demand continues good and quotations remain about $9.50 per 100 pounds.

Conductor Elbows Unchanged; Stocks Low

Toronto.

CONDUCTOR ELBOWS.—Supplies of these are very low and little change is probable until stocks of sheets become more abundant.

The elbows are being quoted at 50 per cent. above list .

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Shortage Pronounced in Conductor Pipe

Toronto.

CONDUCTOR PIPE AND EAVES TROUGH.—No change in price has taken place on these goods and they are still scarce owing to shortage of galvanized sheets. They are quoted at twenty-five per cent. above list.

PIPE (Conductor)
Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.
8-in.	$6 90	15-in. $12 50
10-in.	7 70	18-in. 16 00
12-in.	9 10	

Add 25% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Sheet and Rod Quotations on Brass and Copper

Toronto.

BRASS AND COPPER.—No change has taken place in these metals and supplies while not over plentiful are in better shape than are iron and steel. Prices are unchanged and market quotations are as below:

BRASS—

Sheets, 24 gauge and heavier, base	0 40
Rods, base ½ to 1 in., round	0 37
Tubing, seamless, base	0 46

COPPER—

Casting ingot, base	0 24
Rods, ½ to 2 in. base	0 42
Soft sheets, plain, 16 oz. and heavier, lb.	0 46
Plain tinned, 16 oz. and heavier, lb.	0 48
Polished and tinned, 16 oz. and heavier, lb.	0 50
Tubing, lb.	0 48

Above prices are full sheets and bars. Cut sheets and bars are 5 cents per lb. higher.

Waste Materials Trading Quiet

Toronto.

OLD MATERIALS. — Very little movement is reported in the waste material market. Scrap iron and steel have been fairly active, but other lines have been quiet. Prices are unchanged and are as follows:

WASTE MATERIAL

No. 2 busheling	$13 00
Stove plate, per ton	32 00
Yellow brass	0 10
Red brass	0 15¾
No. 1 machinery cast	33 00
Heavy melting steel	15 00
Heavy copper	0 17
Scrap zinc	0 06
Light brass	0 08
Wrought iron, No. 1, per gr. ton	15 00
Heavy lead pipe	0 06
Old rubbers, boots and shoes	0 06
Overseas lumbermen's rubber boots	0 04
Bicycle tires	0 01½
Automobile tires	0 02½
Heavy lead pipe	0 05¾
Tea lead	0 03

Tank Heaters Increased in Price

Toronto.

TANK HEATERS.—A revised list price on tank heaters is announced and following are new quotations:

No. 0	$48 00 List
No. 10	66 00 List
Discount 45/5%.	
No. 12	110 00 List
No. 112	130 00 List
No. 15	153 00 List
No. 115	174 00 List
No. 1 Laundry	75 00 List

Discount 40%.

Iron and Steel Prices Are Firmer

Toronto.

IRON AND STEEL.—While the news to hand indicates a readjustment in iron and steel in both American and British markets with an easier trend, local markets remain firm at present with prices unchanged to any extent. Stocks are said to be very little improved and deliveries of steel very hard to obtain. Quotations are the following:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	$ 6 25
Common bar steel, ¼-in. and heavier	5 75
Common bar iron, 3-16 in. and lighter	6 25
Common bar iron, ¼ in. and heavier	5 75
Angle base	5 75
Horseshoe iron	6 00
Tire steel	5 95
Band steel	6 25
Spring steel	12 75
Mining drill steel	31 95
Sheet cast steel	
Mild steel	6 00
Norway iron	16 25
Toe caulk iron	6 70
Sleigh shoe steel	6 00
Hoop steel	7 50

Ingot Metals Have Sagging Tendency

Toronto.

INGOT METALS.—A sagging tendency has been reported this week on ingot metals, with trading in most lines dull, and slightly lower quotations general.

TIN.—This metal has had a downward trend and reached a lower level than for some time on the English markets. Present local quotations are from 53 to 55 cents per pound.

COPPER.—Reductions are announced in U. S. markets on copper, but local markets are said to have been stagnant. Quotations for casting copper are unchanged at 24 cents.

LEAD.—An easier feeling is reported in lead markets, due to exchange and the arrival of foreign metal. Local markets have been quiet and it is being quoted at 9½ cents per pound.

ANTIMONY.— No material change has occurred in antimony which has been dull and prices range from 10 to 14 cents according to grade.

SPELTER.—This has been fairly active at lower levels and present quotations are round 10 1-4 cents.

ALUMINUM. — The market is said to be dull in this metal and prices are unchanged at 37 to 39 cents.

WINNIPEG

WINNIPEG, Sept. 30.—Very few changes on plumbing and steamfitting supplies have been recorded this week. Some lines of enamelware just received are higher in price. Hot water and steam boilers and radiation are expected to go up in price in a few days, and price is only quoted for immediate shipment.

All sheets are still scarce and prices on same range high. There is no change regarding Canada plate prices and, as stated in the last issue of Sanitary Engineer, there is scarcely any of it on the market. Soil pipe and fittings are also still very scarce.

Lead and zinc products are holding firm.

Closet seats and tanks have advanced in price slightly.

Business is still reported good for the time of the year, although stocks were never known to be as low as they are at present.

Pipe Fittings Scarce; Price Unchanged

Winnipeg.

PIPE FITTINGS.—Prices on pipe fittings are steady and unchanged. Stocks are low and deliveries are not easy to obtain, especially in malleables, and if the price does change it will likely be upward. Quotations are as follows:

PIPE FITTINGS

Cast iron fittings	Plus 20%
Plugs	Net List
Bushings	Net List
Unions, ¼-in. to 2½-in.	25% off
Dart unions, ¼-in. to 2-in.	15%
Do., 2½-in. and larger	5%
Nipples, up to 4 in.	45%
Couplings, 4 in. and under	10%
Do., 4½ to 6 in.	Plus 10%

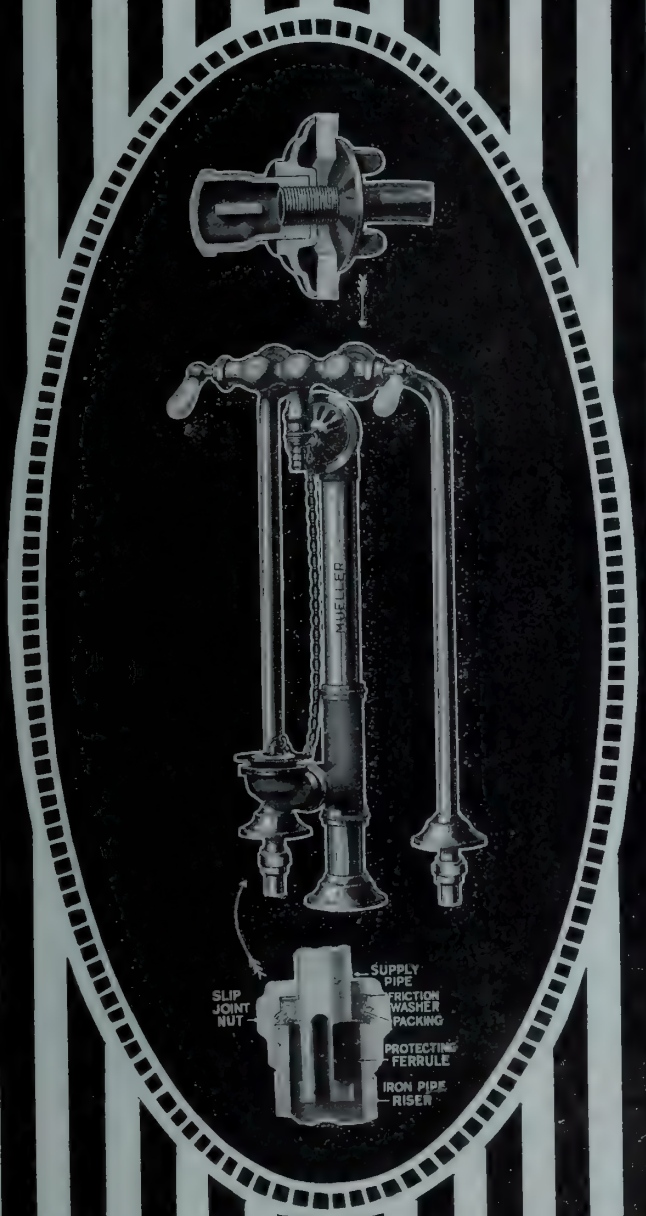
MALLEABLE FITTINGS

Class A, 50% off.
Class B, 60% off.
Class C. 60% off.

Detroit Lubricators Advance in Price

Winnipeg.

LUBRICATORS.—The price has been advanced on Detroit improved standard lubricators and the price quoted this



Make Money with Mueller Products

Here are some sterling *MUELLER* supplies you can profit, by pushing — profit not only in making more money, but also by having *MUELLER* merit sustain your own standing and increase your reputation for dependable service.

Impress your customers with the unmatched *MUELLER* standard for economy and endurance—the result of over a half century's experience in manufacturing perfect plumbing supplies.

MUELLER SUPPLY PIPES And BATH COMBINATIONS

steadfastly maintain the integrity of the *MUELLER* name. Made after carefully calculated designs, under a perfect system of inspection, of metal specially selected because of its eminent fitness for the purpose intended. You cannot go wrong by advising your customers to install these goods.

Write today for detailed description and prices, A2390, A2435, A2430.

H. MUELLER MFG. CO., Ltd.
SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools

American Factory at Decatur, Illinois, U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products

week on single connection ½ pint size is $15 per dozen.

Steel-clad Baths Cost More Money

Winnipeg.

BATHS.—A new higher price is quoted on steel clad baths and 5½ foot are now selling at $17.50 each.

Basin Cocks Higher; New Discount

Winnipeg.

BASIN COCKS.—The discount has been revised on basin cocks and they are now higher in price. Price quoted this week is 16 per cent. off the list.

Price Raised on Garlock Spiral Packing

Winnipeg.

PACKING.—There has been a slight advance this week on Garlock spiral packing and it is now quoted at $1.44 per lb.

Asbestos Products in Good Demand

Winnipeg.

ASBESTOS PRODUCTS.—There has been a good demand for nearly all kinds of asbestos goods, including asbestos cement and furnace coverings. Prices have remained firm but the market is rising. The higher freight rates are sure to have the effect of causing advanced prices. There does not seem to exist any shortage in these goods.

Pipe Unchanged But Scarce

Montreal.

PIPE.—There is no change in prices of pipe, but stocks are very low. Latest quotations are as follows:

BLACK PIPE
f.o.b.

Size ins.	Winnipeg	Calgary, Edmonton, Lethbridge & Medicine Hat. Add to Winnipeg price	Saskatoon Add to Winnipeg price	Regina Add to Winnipeg price	Brandon Add to Winnipeg price
⅛	$ 6.17	$ .25	$ .16	$ .14	$ .09
¼	5.76	.43	.28	.24	.15
⅜	5.90	.57	.37	.31	.20
½	7.88	.85	.55	.47	.30
¾	9.77	1.14	.73	.62	.40
1	14.40	1.68	1.09	.92	.59
1¼	19.53	2.29	1.46	1.24	.79
1½	23.40	2.73	1.75	1.48	.94
2	31.50	3.68	2.35	1.99	1.27
2½	50.94	5.82	3.73	3.16	2.01
3	66.60	7.62	4.90	4.15	2.64
3½	84.60	9.20	5.85	4.95	3.15
4	99.90	10.89	6.93	5.87	3.74
4½	119.25	12.64	8.12	6.87	4.38
5	139.05	14.81	9.43	7.98	5.08
6	180.00	19.19	12.20	10.32	6.57
7	263.70	23.77	15.13	12.80	8.15
8L	277.20	25.00	16.25	13.75	8.75
9	382.50	34.19	21.91	18.54	11.80
10L	354.60	32.00	20.80	17.60	11.20

Galvanized Pipe

Size Ins.					
⅛	$ 8.64	$ 0.25	$ 0.16	$ 0.14	$ 0.09
¼	8.10	.43	.28	.24	.15
⅜	8.24	.57	.37	.31	.20
½	9.50	.85	.55	.47	.30
¾	12.06	1.14	.73	.62	.40
1	17.82	1.68	1.09	.92	.59
1¼	24.12	2.29	1.46	1.24	.79
1½	28.80	2.73	1.75	1.48	.94
2	38.84	3.68	2.35	1.99	1.27
2½	63.00	5.82	3.73	3.16	2.01
3	82.80	7.62	4.90	4.15	2.64
3½	103.50	9.20	5.85	4.95	3.15
4	122.40	10.89	6.93	5.87	3.74
4½	146.70	12.64	8.12	6.87	4.38
5	171.00	14.81	9.43	7.98	5.08
6	222.30	19.19	12.20	10.32	6.57
7		23.77	15.13	12.80	8.15
8		25.00	16.25	13.75	8.75

Wholesale

Terms in all cases 2 per cent. 30 days, or net 30 days, or net 60 days.

Range Boilers Good Demand; Stocks Low

Winnipeg.

RANGE BOILERS.—There is quite a big demand for range boilers and much difficulty is being experienced in filling orders as stocks are being exhausted and material is scarce. Prices have not changed lately but there is no doubt they will soon be higher if conditions remain as they are, and raw material is costing more money.

Range Boilers—	Each
30 gallon	15 00
35 gallon	17 50
40 gallon	20 40
52 gallon	27 20
66 gallon	35 00

TAX ON TINWARE

The secretary of the Ontario Retail Hardware Association has taken up with the Inland Revenue Department the question of excise tax on tinware manufactured in hardware or plumbing. The matter is explained in the following correspondence:

30th August, 1920.

G. W. Taylor, Esq.,
Asst. Deputy Minister,
Inland Revenue,
Ottawa, Ont.

Dear Sir:—

I am enclosing herewith a letter from a member of this association requesting information as to Excise Tax on such goods as are made up in an ordinary tinshop. For the most part tinshops are of small calibre and much of the goods made up are with the intent of keeping the employees busy during the slack times so as to keep the men for installing furnace work, etc., when required. It would not appeal to me that the intent of the act was to apply to a business so carried on in a retail manner, and the Excise Tax was previously paid on the material used.

After reading the enclosed would you kindly give me the information required—for the use of the members of our association.

Yours truly,
SECRETARY.

Department of Customs and Inland Revenue.
Ottawa, Sept. 9th, 1920.

Ontario Retail Hardware Ass'n.,
Prescott, Ont.

Sirs:—

I acknowledge receipt of your letter of 30th ultimo regarding tinware processed in a retail store.

You are informed that a tax of 2% is collectable on tinware so processed when the finished article is sold over your counter or to other retailers, and a tax of 1% should said article be resold to wholesalers or jobbers.

There is no tax on goods sold by a retailer to a consumer when said goods are sold in the same condition as when purchased, excepting in the case of goods which are subject to Luxury Tax.

I remain, Sir,
Your obedient servant,
G. W. TAYLOR,
Ass't. Deputy Minister, Inland Revenue.

The Editor

Sir:—

Having had several enquiries re Excise Tax on goods made up in retail tinshops, I wrote the Department as per enclosed copy, asking for definite information—and an enclosing you herewith copy of the reply received.

I still believe that it was not the intent of the act to collect any Excise Tax on small sales of goods made in the retail tinshop, and think a hearty protest by those affected should effect a change in the ruling and exempt this class of trade from the operations of the Excise Tax, which involves the making of duplicate sales slips for every small sale, and the collecting of the tax from the customer, necessitating innumerable explanations to and disputes with the customers over an exceedingly small amount.

Our next convention will undoubtedly take this matter up in an endeavor to have the same satisfactorily adjusted.

W. F. MACPHERSON,
Secretary.

CEMENT JOINTS

(Continued from page 15)

on the 4-in. line took about 20 minutes. No joints in large pipe have been taken out.

One indirect advantage of cement joints is that they act as insulating joints and reduce the amount of current carried by the line. This feature is of particular importance in the larger cities where electrolytic action has done considerable damage. The cement joint increases the resistance of the pipe as a conductor to such an extent that the current carried is negligible.

Taking all things into consideration, it is believed that the cement joint has come to stay. Improvements over the present methods of making the joint will undoubtedly be made, but even at the present cost they are cheaper than any other joint known, and from all the experience out here on the Pacific Coast they are entirely satisfactory.

*From the Journal of the American Water Works Association.

CONDENSATION AND CONDENSERS

(Continued from page 30)

equal from 20 to 30 times the amount of that evaporated by the boiler.

The lower the temperature of the injection water; the less injection water will be required.

When the injection water is at a temperature of 90 degrees, the quantity required is about 52 times the amount of the water evaporated. Thus we see that with an increasing temperature of injection water an increasing supply of water must be required.

WATERWORKS MEETING

Almonte.—A meeting was held here to discuss the waterworks question. The mayor undertook to secure all data and information possible.

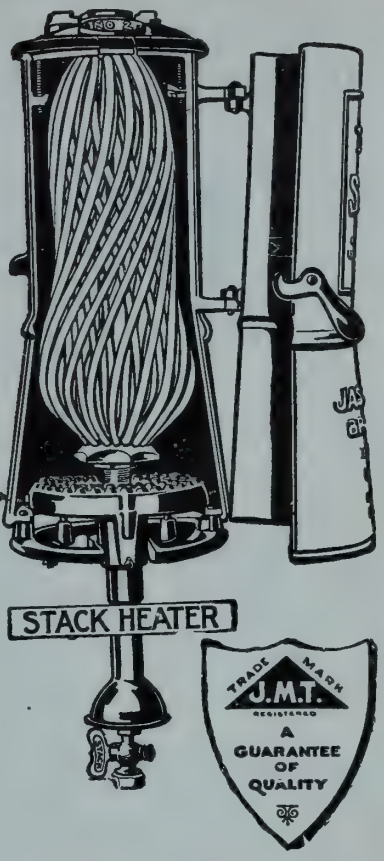
Display the

STACK HEATER

and Make Profitable Sales

Stack Gas Water Heater has many powerful selling points. It saves gas, and gas saved is money saved.

The network of small pipes exposed to the hot gas flame will heat water quicker than one large pipe because of the greater heating surface offered. Heats water in a minute; show your prospect. No technical knowledge is necessary to see the advantage of the Stack Heater.



Send for a Stack Heater Display Card

The James Morrison Brass Mfg. Co., Limited

93-97 Adelaide Street West, Toronto, Ontario

Westco

Tankless Water System

A Necessity in Every Rural Home

Nothing is so badly needed in most rural homes, farms, etc., as running water. The Westco Tankless Water System—which weighs less than a hundred pounds—performs its duty thoroughly wherever installed, and is receiving whole-hearted praise from farmers and rural residents who have installed one.

The agents, salesmen and engineers now recommending—and selling—the Westco System are making good profits, because the high reputation of the system is spreading rapidly. It can be used wherever electricity is available.

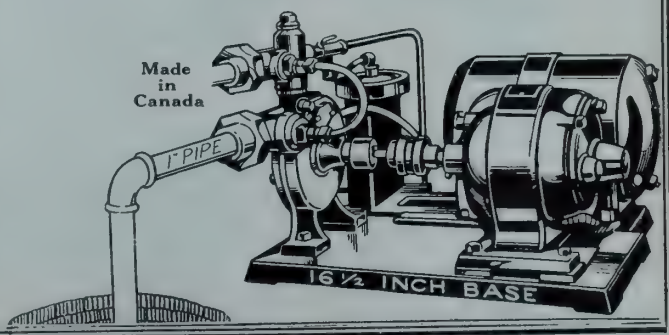
These are the selling features—the points that will interest the farmer, and the rural and suburban resident:

(a) Requires no pneumatic or attic storage tank.
(b) Simply constructed; no possibility of complications.
(c) Entirely automatic. Open tap, pump immediately starts pumping. Close tap, pump stops.
(d) Pumps 300 to 500 gallons per hour.
(e) Costs less to buy, install, maintain and operate.
(f) Has no tank, no gears, no valves, no belts, no oil cups, no grease cups, etc.
(g) Is self-lubricating.
(h) Pump has only one moving part—the impeller. Nothing to wear out, except two small bearings, which will last for years.
(i) Size 16½ in. long; 14½ in. wide and 11 in. high.
(j) Uses less power than an electric iron, while supplying water for four faucets.

Write us for full particulars. There are still a few good territories left open.

Westco Pumps, Limited

707 Yonge St., Toronto, Ont.



Pipe Fittings

Made in Canada

The Brand that has the Quality

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

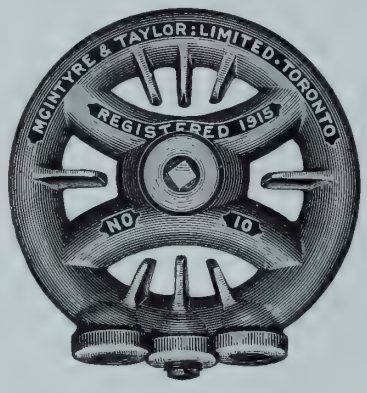
CAST IRON FITTINGS
With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS
With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads.

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing
Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada



Good, Successful Designs
M & T Coils

This is no idle phrase; M & T coils are successful because of perfect circulation, liberal waterways, greatest heating surface and hot water production for its size. Made of sound grey iron castings, free from sand and blowholes. Every coil is properly tapped with perfect standard thread. M & T Coils are fully guaranteed.

McIntyre & Taylor LIMITED

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TORONTO 501-3 Queen St. W.
WINNIPEG 156 Lombard St.

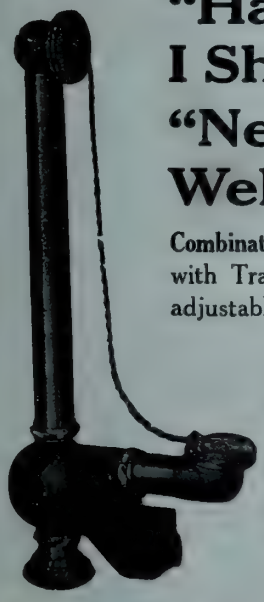
Extending the Uses of Your Product by Informing Dealers

When the efficient, modern advertiser finds his reputation firmly established, the confidence of the trade firmly held, distribution ideal and his product and trade-mark thoroughly familiar, he directs the full force of his continuous advertising toward increasing the uses of his product by showing the dealer and his salesmen each week new uses for his goods that both stimulate sales and increase the consumer satisfaction with the product.

A message to the whole plumbing trade of Canada through Sanitary Engineer is productive, profitable and reliable "business insurance" for the future.

Toronto Hardware Manufacturing Co., Limited

Recommend Riveted Range Boilers, the kind that stands the test of time, not the flashy kind that appears good for the first year or two and then gives out.



"Handy"
I Should Say So
"Neat"
Well, I Guess Yes

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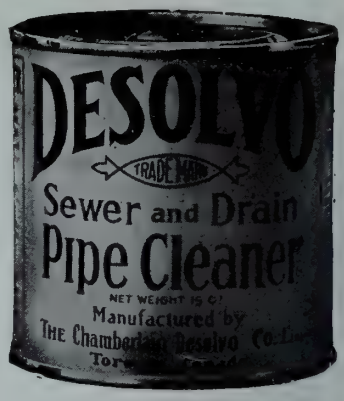

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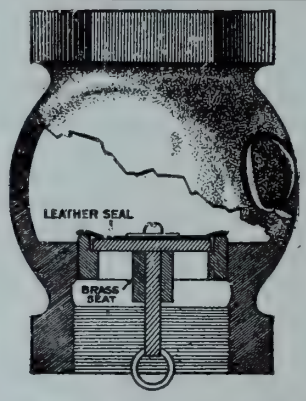

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OPEN VIEW
NO. 10-A

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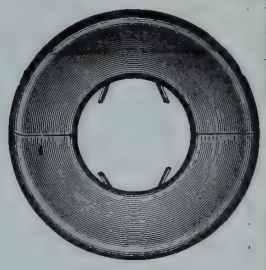

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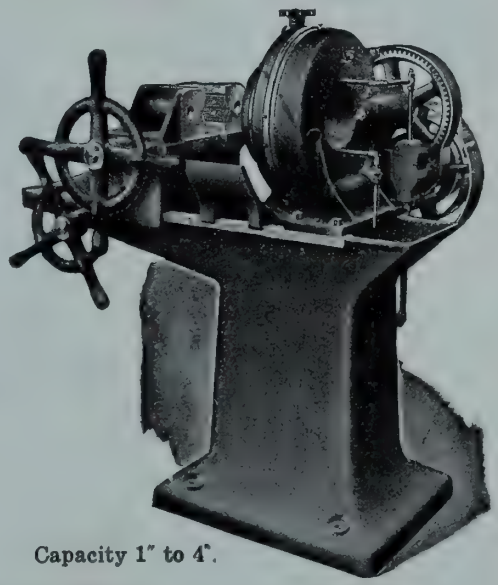

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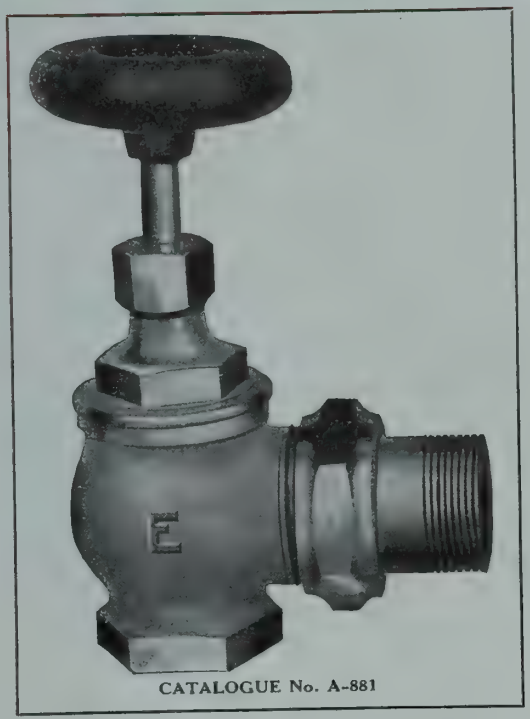
VOL. XIV. PUBLICATION OFFICE, TORONTO, OCTOBER 15, 1920 No. 20

Steam Proof
Empire Radiator Valve



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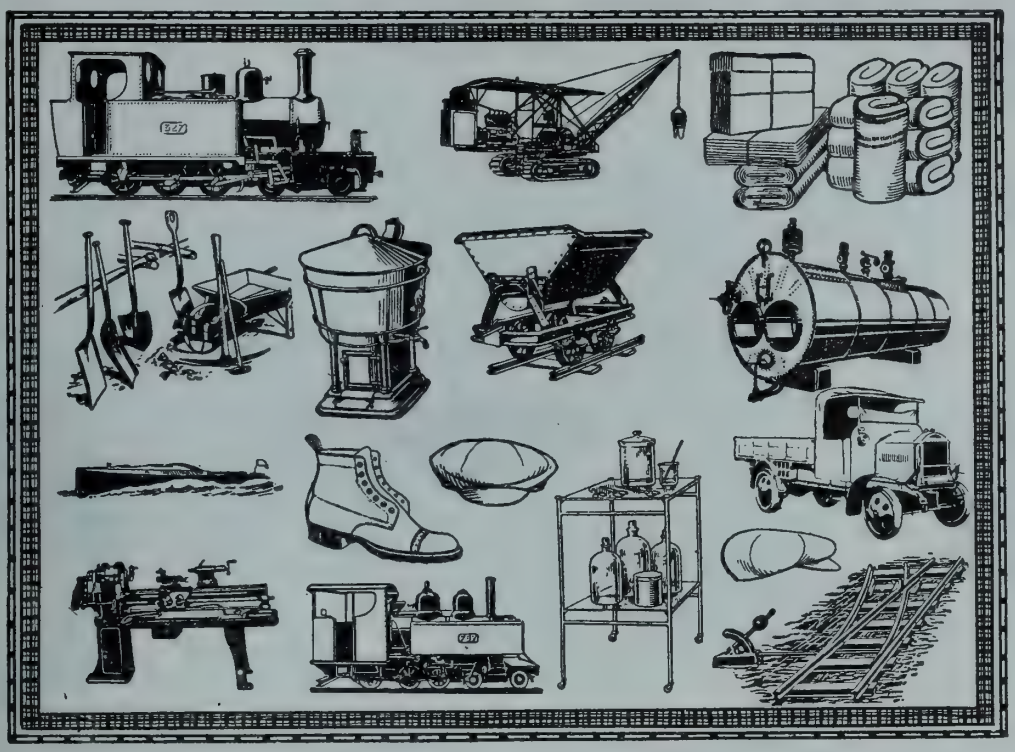

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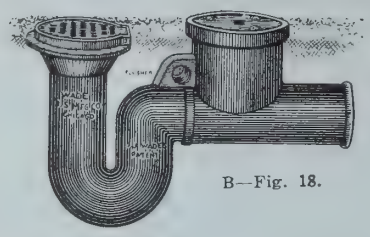

B—Fig. 18.

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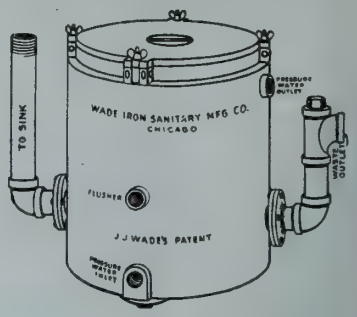

B—Fig. 27.
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

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B—Fig. 126.
Wade accessible flushing cleanout floor wash and backwater valve combination.

B—Fig. 13.

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B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

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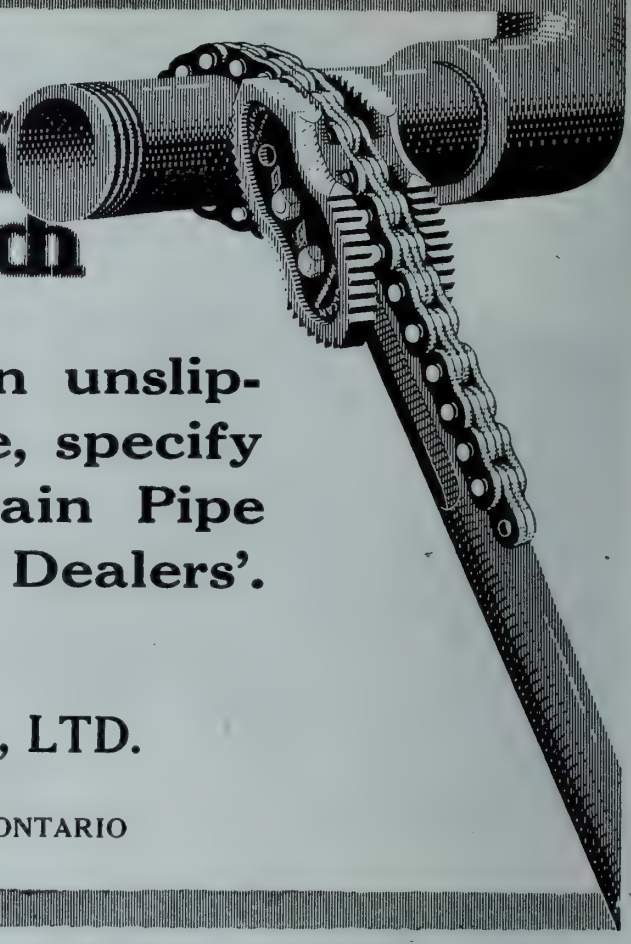

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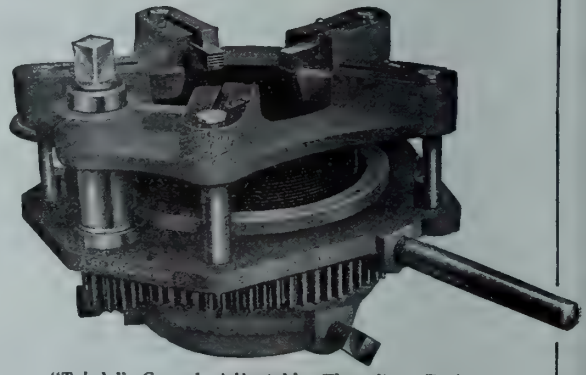

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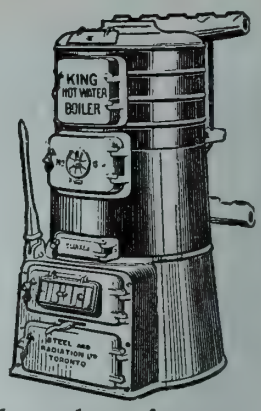

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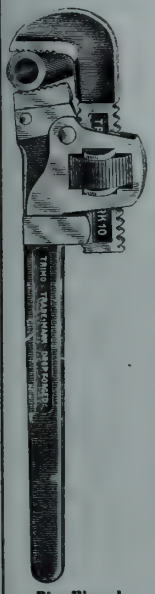

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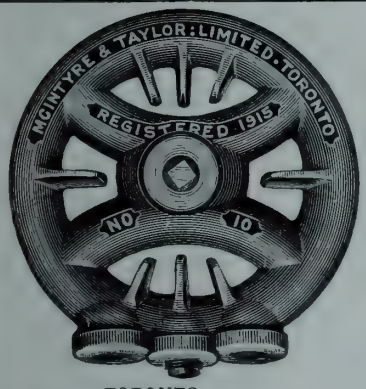

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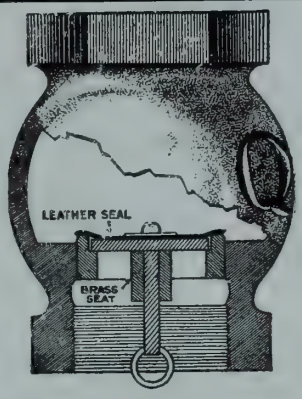

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PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 — PUBLISHED TWICE MONTHLY

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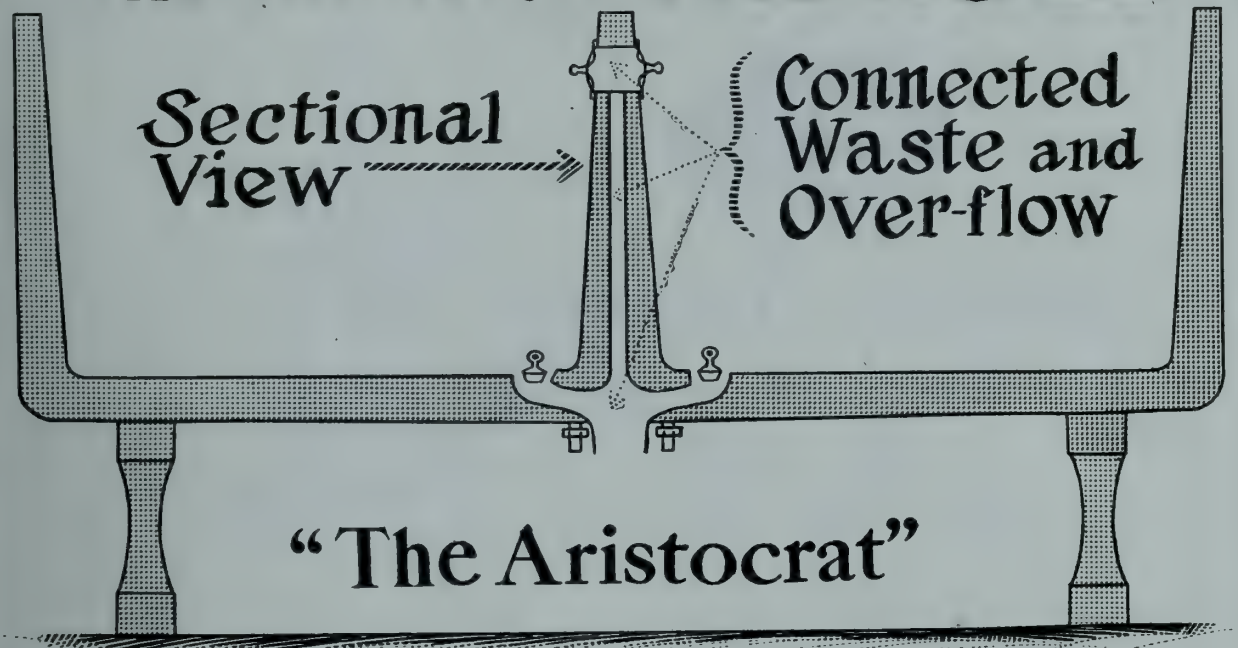

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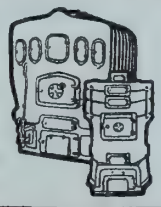
Of course you fellows know all there is to know about all the boilers that are made.

Just kind of noticed, however, that you listened to what I told to Angelo.

Come around again.

Next time I'll be explaining something to an Eskimo.



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Favor Dominion Organization of Inspectors

W. H. Meadows, Secretary of Ontario Ass'n. of Plumbing and Drainage Inspectors, and G. Frankland, Secretary of Canadian Society D.S. & H. E., Endorse New Canadian Sanitary Association

LOCAL comment as heard by "Sanitary Engineer" is apparently in favor of the new Dominion-wide organization of inspectors known as The Canadian Sanitary Association as outlined in the last issue of "Sanitary Engineer."

In discussing the advantages of such an organization W. H. Meadows, Secretary of the Association of Plumbing and Drainage Inspection of Ontario, was of the opinion that it would be a very good move and would be beneficial to all concerned.

"It is really an enlargement on the same idea as our own organization in Ontario," said Mr. Meadows to Sanitary Engineer, "although the new Dominion-wide organization has many advantages." "The expressions of the prominent sanitarians and inspectors of the whole Dominion would be heard and would certainly be instructive and valuable."

"No by-law could be formed to govern the whole Dominion," he added, "on account of the differences in climate, although the provinces would likely incorporate each others' good points."

Benefit Inspector and Property Owner

"Local problems can be introduced and discussed and improvements suggested," he continued, "and the leading men can meet and consider all the problems with the object of making things run as smoothly as possible for the inspector and be most beneficial to the property owner."

"That is in effect the aim of our Ontario organization," said Mr. Meadows. "To give the owner the best benefit of the inspection, to prevent trouble between the owner and the plumber and to facilitate things as much as possible for the inspector. "And also," he continued, "to act as a sort of advisory committee for the owners. I presume that the new organization has the same aims. The more inspectors that can gather together the better benefits will result."

May Link Up Ontario and Canadian Organization

As to the possible linking up of the Ontario and Dominion organization, Mr. Meadows could not say but hinted that it was altogether likely that it would be affiliated with all other provincial organization in the new Canadian Sanitary Association.

Thinks New Organization Can Be Effective

G. F. Frankland, expressing an opinion as Secretary of the Canadian Society of Domestic Sanitary and Heating Engineers, stated to Sanitary Engineer that the organization of Canadian sanitary inspectors into one organization was one of the best moves which have been made as far as its effect on the plumbing trade is concerned. This opinion was based on the expectation that the organization of inspectors would result in bringing out ideas from all parts of the country and applying more weight to any recommendations which might be made. There is recognized to be much good work for such an organization acting in an advisory capacity on local boards of health, etc., where difficulty has previously arisen over the appointment of members of such boards who have had little or no experience along such lines as would recommend them for this work. The necessity of having a competent plumber on such boards has been pointed out on many occasions and possibly this is a reform which such an organization of inspectors would appreciate and recommend.

Essential in View of Likely Building Expansion

"In my estimation this new organization is a splendid thing," said F. A. Dallyn, Provincial Sanitary Engineer, when interviewed regarding the Canadian Sanitary Association. "It will mean the standardization of practice throughout the whole Dominion. No municipality will attempt to run on its own; all municipalities will get together and improve inspection by interchanging ideas and substituting improved methods. With the increased building expansion that is contemplated throughout Canada such an organization is absolutely essential for the welfare of the Dominion."

As to the possible connection the new organization would have with Boards of Health, Mr. Dallyn explained the fact that other than mere relationship would be altogether unlikely on account of the inspectors' organization being national and the Board of Health provincial.

Would Price Easing Stimulate Business?

One of Present Needs is Extensive Building—If Commodity Prices Can Be Even Slightly Reduced Might Be Improvement in Actual Conditions.

MONTREAL.—On every hand, in every town, city and district, there is a fair, though not an excessive, amount of building activity. The reason for this restriction is doubtless the result of a feeling, in the minds of some, that there will be substantial reductions in material costs. How widespread this feeling is cannot be definitely outlined. After discussing the situation in Montreal with a number of prominent jobbers, it is safe to say that prices will, if possible, be maintained without change. That is to say, on items which have a strong undertone, manufacturers and jobbers feel that prices are high—as high as they can be with the possibility of extensive business being done in the coming months. For this reason, partly, it would seem that the crest has been reached on many products, and that, if production should be measurably improved within the next few weeks or months there may be a somewhat improved price basis on a number of lines.

This is Desired

"If only the cost of materials could be reduced, even a little, I believe that it would be an excellent thing just now," was the comment of a large Canadian manufacturer. "This would have the good effect of stimulating building, and that is what is so much needed; the housing needs are really acute, and while there has been some building, it has not been of such character as to be called extensive."

Further reference was made to the great benefit that would attach to the actual starting of a few big jobs. In Montreal, for instance, it is planned to erect a large hotel of 1,000 rooms. This would entail an outlay of probably well on to ten million dollars, and such an enterprise—if the funds necessary were now available—would have this important effect, that of stimulating other building. Permits have been taken out for a great deal of work, but in some cases actual headway has not been made. This is the result of a number of considerations, one of them being that of the uncertainty of labor and its demands, and the other that of the uncertainty of getting uninterrupted supplies of material essential to continued work.

Important to Plumbers

It is of very great importance to the trade that work on various buildings be proceeded with. The near approach of cold weather will naturally hold up much work, but, on the other hand big work often proceeds apace in cold weather. This has been the intention, Sanitary Engineer understands, with regard to the big hotel proposition, recent announcements stating that the hostelry is to be completed within twelve months or less. This would indicate that operations are to begin immediately.

There has been considerable jobbing in Montreal as well as in other parts of the country this summer. It has not always been easy to obtain the help essential to the completing of contracts, though master plumbers have not fared badly. What they would welcome most heartily would be a continuation of work this winter. There would be far less likelihood of wage differences under cold weather conditions when every man wants and appreciates a good job, and that is one of the usually quiet spells.

"We are hoping that conditions may soon improve with regard to actual building operations," said a second informant. "That is what we are now waiting for, and if one or two big jobs can be got under way it will be very helpful."

Will Prices Fall?

It is a fact that many products are holding high; "we do not want them to advance further," commented a manufacturer, "and, as far as we are concerned, we do not expect to make advances unless it may be on material that we are short of and which we have to go out and buy. On these we will naturally have to get our money out, but as far as increasing any prices we do not expect to do this; they are high enough."

Radiation and boilers have been marked up again, and this was partly looked for. But malleables, cast fittings, and wrought pipe, although scarce and high, are being held unchanged. Manufacturers claim that advances have been made on these lines in the United States and that prices there are higher on some lines that they are in Canada. To advance costs further seems to be far from the intention or desire of many of those interviewed. It is hoped the crest has been reached, and that, gradually, there may be an improvement within reasonable time the other way.

BRITISH IMPORTS OF CANADIAN PRODUCTS FALL $69,000,000 IN FIRST HALF OF 1920

The imports into the United Kingdom from Canada during January-June, 1920, were valued at $165,332,797 as compared with $234,776,000 for the same period in 1919. This is a decrease of over $69,000,000 or nearly 30 per cent.

Exports from the United Kingdom to Canada during the same period show an increase of $72,500,000 or 238 per cent., being valued at $103,023,747 in 1920 as compared with $30,515,529 in 1919.

Britain's re-exports to Canada show an increase of over $15,000,000 or some 600 per cent., being the largest in the British possessions.

Re-exports for the first half of 1920 were valued at $17,657,667 as compared with $2,502,870 for the same period in 1919.

HEATING EXPERT THINKS HIS DEVICE WILL HEAT HOUSES AT BIG SAVINGS

Winnipeg.—Is it possible to heat houses for six cents per day per room or $18 per month for a 10 roomed house?

It is according to James Taylor, engineer of the I.O.O.F. building in this city, who gave a demonstration of heating devices he had invented. Several prominent citizens were in attendance and expressed the opinion that the invention would revolutionize the heating problem of this city. Dr. A. E. St. John, who has investigated J. Taylor's system, thought that the Citizens' Liberty League could perform a great public service by promoting its manufacture on a large scale.

Wanted—Your Opinion of Drafting Articles

In recent issues of Sanitary Engineer a series of articles entitled "Drafting for the Sanitary Engineer" has been appearing in instalments. The suggestion has been made that this series is perhaps too technical for those in the trade who would benefit most from the study of such a series. There is no question of the value of a thorough knowledge of drafting for plumbing and heating engineers, but it is a question as to whether such articles give sufficient instruction.

Send in your opinion as to the value of such a series, as to whether you have been following it, whether it is easy or difficult to understand, whether you would like it continued. Drop a line to

The Editor,
Sanitary Engineer,
143 University Avenue,
Toronto.

Relation of Sanitary Inspector's Work to Plumbing and to Work of Public Health Boards

Formation of "Canadian Sanitary Association" of Inspectors Makes an Interesting Question as to Future Relations of Inspectors to Public Health Regulations Especially as They Affect Plumbing —Will Tend to Put Experienced Men in Advisory Capacity to Local Health Boards.

THE relation of the work of sanitary inspectors to the public health with particular regard to the effect on plumbing work is an interesting topic to Canadian plumbers to-day, particularly in view of the increasing organization on foot among inspectors and the recent formation of a Canadian Sanitary Association. Plans for the inspectors to work in close co-operation with public health bodies are being considered and the result may be what plumbers have been wanting for a long time, namely that competent men experienced in the trade will serve in an advisory capacity to public health boards. Following is the address given on this subject by Dr. T. H. Whitelaw, medical health officer of the city of Edmonton:

"It is undoubtedly true that a great many things with which a sanitary inspector has to do have not a very great bearing on the causative factors which are responsible for the contagious disease of the community, the prevention as far as possible of which is the primary duty of a medical officer of health. Nevertheless such duties of a sanitary inspector are closely related to the welfare and indirectly the general health of the public. To have the lanes and streets as well as vacant property kept clean and tidy in appearance undoubtedly inculcates habits of cleanliness and good order, which will be reflected in the improved conditions inside the homes of the people, which will naturally result, and will have a tendency to improve the hygienic influences which favorably affect the general health. When you find a householder, who habitually keeps a dirty and untidy back yard, you generally find one who is just as careless about the sanitation and cleanliness of the interior of the house. And in the great majority of cases the converse will also be found to be true, except perhaps in the case of a tidy and industrious citizen, who has had the misfortune to marry a slatternly wife, who has never learned even the elements of good housekeeping. A good housewife on the other hand who takes pride in keeping the interior of the house clean and sightly will generally exercise enough moral suasion on an indifferent husband to see that he assists her in preserving cleanly and attractive conditions in the outside surroundings. Where both are easy-going, careless or satisfied to exist on the bare margin of decency, the case is hopeless, and only the most strenuous attention with a tactful approach on the part of the sanitary officer can effect improvement in the living conditions of such a family. I used the words tactful approach advisedly, because long experience has taught me that more can be accomplished by guile, diplomacy or advice tactfully but firmly suggested in securing improvements in sanitary conditions in the home and surroundings than by exercising such authoritative powers as those with which the health laws may invest the inspector. Nevertheless, where nothing else will effect improvement, the inspector should not lie down on the job but bring to bear all the police powers our somewhat imperfect regulations place in his hands. The public generally are apt to assume that the sanitary inspector possesses powers very much wider than the laws of the province actually confer upon him, and frequently requests are made for services in connection with matters which are outside the jurisdiction of the health department.

"Many complaints are entered alleging breach of sanitary and health laws by people who desire to use the health department as a means of retaliation against a neighbor with whom they have not been able to maintain at all times harmonious relations, and in most cases it is found the complaint is unfounded or trivial.

In the city of Edmonton the territory over which our sanitary inspectors exercise control is approximately 42 square miles. Consequently our inspectors, whose number is limited, cannot hope to make an inspection of this huge territory, as some of the public think they should, at regular intervals. For knowledge of such insanitary or objectionable conditions which develop, we are compelled to depend largely on complaints made by interested parties, and however trivial the complaint may appear to be it is given as prompt attention as possible.

The name of the party complaining is always withheld from the party complained of, for obvious reasons, though it is our usual custom to get the name of the complainant if possible in order to be able to communicate with him as to the disposition made by his complaint.

"Our sanitary inspectors do not restrict their work entirely to matters of sanitation but occasionally when epidemic disease is more than usually prevalent, assist the health inspectors in matters of quarantine and disinfection, and vice versa the health inspectors are trained to carry on their duties, giving such assistance as may be conveniently possible to the sanitary inspectors. That it is advisable to employ for the future only such inspectors as have had special training and passed an examination entitling them to special recognition is the policy of the city health department. Nevertheless by long experience and the acquirement of special ability in dealing tactfully with the public some health and sanitary inspectors have made themselves almost indispensable in the carrying on of their duties and are extremely well qualified through their own efforts in acquiring special knowledge of sanitary and health laws.

"As already intimated much of the work done by sanitary inspectors has only a very indirect bearing on the matter of prevention of infectious disease, but their work is not to be regarded as unimportant on this account but rather as supplementary to the work of the health inspectors, who deal more directly with the measures specially directed towards limiting or preventing the spread of communicable diseases in the community.

The old theories as to the sources of infectious diseases have in recent years largely given way to modern ideas based on scientific discovery and research, and in the prevention of epidemics of disease it has been found that efforts based on this modern theory of contact infection are much more effective than those based on the older and discredited ideas, which had little or no effect as a protection to the community. Under the old theories sources of disease were sought for in the environment of the individual, and by a process of biogenesis all the disease germs known to be dangerous to humanity were believed to have their origin quite independent of the human animal, in damp cellars, leaky plumbing, dust, foul air, bad smells, dirty clothing, rank vegetables, swamps, stagnant pools, smoke, garbage, manure or dead animals.

The new public health finds the real source of disease germs in the individual himself and the emanations from his body, which find their way by various and devious routes to the healthy individual. Examples which may properly come under the term contact infection in its wider sense are water, milk, food, flies and fingers, all of which may be the vehicle by which disease germs find their way into the human system. The diseases which are most likely to be communicated in this way are typhoid fever, tuberculosis and intestinal diarrhoea, or so-called summer complaint in children, which may properly be regarded as filth diseases, and in the prevention

(Continued on page 16)

Hampered by Material Shortage and Labor

Master Plumber's Problems Are Not Easily Surmounted—Outlook Not Very Promising If Labor Persists in Unreasonable Demands.

JUST what improvement may be recorded in the situation as regards the plumbing trade depends very largely upon the tenor of labor. So thinks Alex. Charette, of Charette & Frère, Montreal, past president of the Canadian Society of Domestic Sanitary and Heating Engineers. In the course of an interview Mr. Charette stated that the demands of labor had been so ridiculous and unreasonable, in many instances, that it was out of the question to meet them. And, unless they change for the better, there is nothing to do but let them find, through sheer suffering from unemployment, that they must produce and earn their money.

"We sent a man out to put up some stove pipes," said Mr. Charette. "He was on the job seven hours and we had to charge the customer $7 for the work. I am confident that I could have done the work myself, unaided, in not more than three hours, so that the time spent was altogether out of reason."

This observation of Mr. Charette's illustrates but one of the difficulties that the master plumber faces today. There is great unrest within the bosom of some men—a big majority of them not wanting to work, and when they undertake to work they will not do so.

This Hard to Deal With

Mr. Charette says that he has been a union man himself and that when he was associated with a union many years ago, while an apprentice, there was no trouble such as that existing today. Wages have gone up greatly and good men are being paid from 75 to 85 cents an hour. But they are not satisfied with this, and even though they make an agreement to engage for a fixed wage they will frequently go back on that understanding within a short time.

"For instance," said Mr. Charette, "we sent a man out on a job recently and he had almost completed the work when five o'clock came. About 15 or 20 minutes should have completed it. He promptly dropped his tools and would not finish the work. When the next day came he returned and spent a couple of hours in completing the job. I think this was very unfair, but that is the way the men work. I have a friend in the city who is conducting a plumbing business and he has about 15 men working. On Monday mornings many do not report for work; perhaps half a dozen will come, and then later in the week the others will come around. There is no interest taken in the work by the men. As long as this continues there will be no increase in production and people will not go ahead with jobs they want done, for they cannot tell what it will cost."

It is probable, thinks Mr. Charette, that many of these men will not get down to producing a full day's work until they are faced with continuous unemployment, and then, perhaps, they will be ready to accept a fair wage and give fair value for it.

Shortage of Material

A very great handicap exists in plumbing circles, Mr. Charette states, owing to the shortage of pipe. "We have a job held up just now, where the radiators are placed, but we cannot complete the job owing to the scarcity of pipe. I know a jobber who placed an order for over 400,000 feet last winter and he can get but small quantities of a few hundred feet at a time. It makes things bad."

In the prosecution of electrical work there has been some difficulty, but conduits and other materials have not been so scarce. Taking the whole situation into consideration, however, the master plumbers have no easy path to tread, and under such conditions it is somewhat difficult to suit customers and complete the work they desire installed.

RELATION OF SANITARY INSPECTOR'S WORK TO PLUMBING

(Continued from page 15)

of which the work of milk and food inspectors and sanitary inspectors is obviously of very great importance. The ordinary infections such as smallpox, scarlet fever, diphtheria, etc., are not filth diseases properly speaking as they invade the homes of rich and poor alike, whether sanitary or insanitary, and appear to be dependent almost entirely on personal contact with a previous case. Their prevalence in any section of a city is largely independent of sanitary conditions, except in so far as more crowded conditions of living where the opportunity of personal contact is greater is likely to prevail in the less sanitary districts. This is particularly true of smallpox, which is regarded by those who oppose vaccination as being entirely due to insanitary conditions, whereas it is entirely a question of how much protection against it any section of the community has previously acquired by successful vaccination. Smallpox in Edmonton has attacked a much larger proportion of people who live under good sanitary conditions than among those who do not, simply because the latter are usually protected by a successful vaccination in previous life.

"The sanitary inspector in all measures he takes to discourage or remove everything which tends to breed flies, to encourage the protection of all food supplies from flies, and other contamination, to eliminate the unsanitary privy as far as possible, to bring about greater cleanliness and proper disinfection of all sanitary conveniences, especially in rooming houses, hotels, and other public or semi-public places, to arrange for bacteriological examination of all water supplies used for domestic purposes such as wells and springs, condemning and closing them if found contaminated, is performing a very important duty, which has a direct bearing on the prevention of disease, particularly the filth diseases mentioned in a previous paragraph, and his work cannot be properly dissociated from that of a department of health presided over by a medical officer of health."

SPEAKER SAYS SOFT WATER WILL DESTROY PIPE QUICKLY

That water of very soft quality will eat and destroy in a few months' time steel and iron pipe, was embodied in an address of Charles R. Hazen, of the staff of the Milton Hersey Company, analysts, Montreal, delivered before the Montreal Electrical Club this week. Even heavy steel plate may be attacked and destroyed within a period of several months by water of a certain type.

The subject of Mr. Hazen's address was along the lines of water purity, as for industrial and household purposes. He illustrated his talk by exhibiting the chemical reactions of soft and hard water samples. One of the interesting observations made was that ice, if not lighter than water, and therefore not subject to melting by the sun's rays, would sink to the bottom and the whole water area of both sea and lake would become frozen solid as well as the earth itself.

An interesting side of the address was that the Dominion of Canada could be mapped out through the hardness of water found at given points. The hardness of the water is governed by the character of minerals in the vinicity, although the rainfall has something to do with it. In addition to this, the soil on which rain may fall will have its own effect.

IRON AND STEEL MANUFACTURING PROSPECTS BRIGHT IN B.C.

Victoria, B.C.—Never in the history of British Columbia has the prospect for development of the manufacturing stage of the iron and steel industry been so bright as at the present time, according to a statement made by Major J. B. Martyn, Provincial Industrial Commissioner, who, with James H. McVity and Nicol Thompson, has returned from a trip of investigation and inquiry in the United States and Eastern Canada for the Government. Major Martyn indicated that negotiations were interlocked with the plans of a British Columbia syndicate and a group of British capitalists.

Heating and Ventilating

Combustion

Written for Sanitary Engineer by N. A. KEARNS

BECAUSE combustion is the result of a chemical combination of certain elements, we should, if we wish to understand this subject, look into some of the principles of chemistry

Everything is an original element, a mixture, or a compound.

An **element** is a substance that cannot be changed into anything else. Such substances as iron, gold, sulphur, etc., are elements.

A **compound** is a substance that can be changed into other substances. Lime is a compound, because it can be divided into two other substances, viz., oxygen and calcium. Water is a compound: it can be decomposed into two gases.

The products of the decomposition of a substance may be entirely unlike one another, or unlike the substance from which they were produced.

Atoms

The theory of chemical combination is based on the assumption that each molecule of an element is composed of two atoms, and that all gases at the same pressure and temperature contain the same number of molecules. Thus an equal volume of air, of steam, and of hydrogen contains the same number of molecules at the same pressure and temperature.

When two elements are placed in contact, under the proper conditions, they will combine and form a compound. If carbon and oxygen are brought together at a sufficiently high temperature they will combine and form carbon-dioxide. The compound so formed will be unlike either carbon or oxygen. Hydrogen and oxygen combine and form water; oxygen, nitrogen and hydrogen form nitric acid.

The explanation of the process of combination is that there is a certain attraction of the atoms of one type of molecule for an atom of another type of molecule. Subjected to the influence of heat or light the two atoms composing a certain molecule are torn apart. In the same way the two atoms of the other type of molecule become separated. Now one of the atoms from molecule of type No. 1 seizes on an atom torn from molecule No. 2. Thus we see how the two atoms of a molecule separate to unite with the atoms of an unlike type to form an entirely new kind of molecule.

As each molecule has only two atoms it will be understood that when two gases are brought together to form a new gas that the new gas will contain just the same number of molecules as there were contained in the two original gases.

Hydrochloric-acid gas is formed by a mixture of equal parts of chlorine and hydrogen. One cubic foot of chlorine and one cubic foot of hydrogen will combine to form two cubic feet of hydrochloric-acid gas. If six cubic feet of chlorine is placed in contact with two cubic feet of hydrogen only four cubic feet of hydrochloric-acid gas would be formed. The remaining four feet of chlorine would still be chlorine. Gases like this can not be made to combine in any other proportion than that of atom for atom.

Elements are usually referred to by their symbols, thus:

Hydrogen: H.
Carbon: C.
Oxygen: O.
Nitrogen: N.
Sulphur: S.

The symbol for a compound indicates how the atoms of the elements are combined to form that compound.

The symbol for water, H_2O, shows that two atoms of hydrogen and one of oxygen form a molecule of water.

Weight

As we have already written, one cubic foot of chlorine combines with exactly one cubic foot of hydrogen to form two cubic feet of hydrochloric-acid gas.

If we weigh each gas separately we shall find that the chlorine is thirty-five and a half times heavier than the hydrogen.

Oxygen weighs sixteen times as much as hydrogen.

Now we see that while equal volumes of gas contain the same number of molecules, the molecules of different gases have different weights. Thus, an atom of chlorine must weigh thirty-five and a half times more than an atom of hydrogen.

The difference between the weight of an atom of the element and that of the atom of hydrogen is termed the atomic weight of the element.

Atomic weight is a standard just as **specific gravity** is a standard. The weight of hydrogen is used as the basis of comparison in atomic weight. The weight of water is used as a basis of comparison in specific gravity.

The atomic weights of the following elements are:

Hydrogen: 1.
Nitrogen: 14.
Carbon: 12.
Sulphur: 32.
Oxygen: 16.

The molecular weight of a substance is the ratio of the weight of the molecule of the substance to the weight of an atom of hydrogen.

The molecular weight of anything may be found when its symbol is known.

The symbol for water is H_2O, thus indicating that there are 2 atoms of hydrogen and 1 of oxygen.

Thus, to find the molecular weight of water we use the following rule:

$2 \times 1 = 2$ parts hydrogen, by weight.
$1 \times 16 = 16$ parts of oxygen, by weight.

18 parts of water, by weight.

A **mixture** is composed of two or more elements or compounds mixed together, and yet not combining to form a new substance.

Ordinary air is such a mixture.

Air is a mixture composed of 77 parts nitrogen and 23 parts oxygen, by weight.

Air is a mechanical mixture: the gases do not combine.

Combustion

When the atoms of elements separate to combine with the atoms of other elements the rapidity of their motions may become so great that heat and light are produced.

An atom of oxygen has a great affinity for almost any substance with which it comes in contact. But it is especially attracted to carbon.

When carbon and oygen come in contact they will unite. And if they come in contact at a sufficiently high temperature they will combine very rapidly. It is this rapid combination that causes heat to be given off.

The elements of combustion are oxygen and carbon or hydrogen.

When hydrogen and oxygen combine they form water; when oxygen and carbon combine they form carbon-dioxide.

Oxidation is the process by which oxygen combines with other substances. The speed of the process will vary according to circumstances.

(Continued on page 36.)

EDITORIAL COMMENT

EDUCATION WILL ELEVATE PLUMBING TRADE TO ITS PROPER PLANE

THE progress of measures having for their object better sanitary conditions and the protection of the public health will do much to elevate the plumbing business to its proper plane. There has been much criticism of the plumbing trade for years past due largely to the fact that those engaged in this business have not asserted themselves sufficiently strong. Organization is now taking place in Canada on similar lines to that adopted in the United States, and much good should result. Sanitary Engineer is giving some details of the help which the National Trade Extension Bureau of the United States is giving to members in that country, and undoubtedly many plumbers in Canada will use this service to advantage, as far as it applies here.

At conventions of plumbers held recently in Canada many of the delegates made the statement that they were not sufficiently conversant with business conditions to conduct their trade in the most efficient manner. Undoubtedly this is why the plumbing trade does not assume its proper proportions to-day. Educational work is being undertaken to see that plumbing apprentices of to-day get a better start than their fathers, but business education is important to plumbers in business to-day and they can receive much valuable assistance from such data as are found in this issue, dealing with percentages of profit, overhead, volume of sales, fixed charges, or operating costs.

EXPERIENCED PLUMBERS ON LOCAL BOARDS OF HEALTH

THE formation of the Canadian Sanitary Association is looked upon by local plumbers as being one of the best moves which has been made as far as its relation to plumbing work is concerned. This opinion has been expressed to Sanitary Engineer by the representative of plumbing organizations, both provincial and Dominion-wide. The chief advantage seems to lie in the fact that the organization of plumbing inspectors will not only bring together the ideas and experience of those in various parts of the country, but it will serve to bring about a greater degree of standardization which is a strong plea to-day. Another outstanding advantage will be that such a representative organization will be able to enforce its requirements as to sanitary conditions with greater effect than an organization of restricted limitations such as have been the provincial associations of inspectors. In the past there have been too many people elected to local boards of health who have absolutely no experience for such work. The sanitary inspectors at their recent meeting pointed to the necessity of having only thoroughly experienced members on such a board. When this condition is brought about no board will be complete without at least one repesentative who has had experience in plumbing and heating.

EDITORIALS IN BRIEF

SERVICE is the lubricator, and inefficiency is rust in the plumbing business.

* * *

DON'T talk price. Talk quality even though your price is low on various installations.

* * *

YOUR windows should stand on the street and pleasantly, cheerfully, reasonably ask every person who passes to step in at your door. Think of them in this light.

* * *

CUSTOMERS you now have will not always be with you. Some will move out of the community—some will die, while others will go to your competitors in spite of all you can do to hold them. What are you doing to recruit others to fill their places?

* * *

LET your customer know that a personal interest attaches to him—a real personal interest that is not measured wholly by his orders and his dollars—and you will win in return that close personal association and active support that builds up business.

Combating Criticism Levelled at Plumbing Trade

Service of the Plumbing and Heating Contractor is Indispensable to the Community—Series of Lectures Prepared by National Trade Extension Bureau of U.S. is Introduced with Data on This Subject—An Outline of the Work Which May Later Be Followed by Similar Organization in Canada.

Editor's Note:—Herewith is the first lecture of a series prepared by the National Trade Extension Bureau of the U. S. in considering various phases of the plumbing business. This instalment deals largely with the criticisms which have been directed at the plumbing trade and points to the most efficient manner in which to overcome this difficulty. The lecture is reproduced in the form in which it is supplied to master plumber organizations throughout the United States, where it is read before such organizations by some one member. It contains a great deal of very useful information to the trade in Canada as well, and, furthermore, gives some idea of the service which may later be rendered by a similar organization in Canada.)

AT THE last National Convention of Master Plumbers the delegates were discussing the proposed increase in dues when one delegate arose and told this story to prove that you can only get benefit out of a project in proportion to what you put into it.

He said: "A certain preacher was called into another pulpit one Sunday morning to fill a vacancy. The preacher thought that this occasion offered an excellent opportunity to gather together a little loose change:

"To do the job well he planted a paper dollar and a quarter in change of his own money in the collection box in advance of the sermon. At the proper time the box was passed by one of the deacons. After the services the preacher proceeded to empty the collection box. To his surprise all that was in it was the original paper dollar and five nickels in change.

"Turning to the janitor who had been watching the performance, the minister said: 'What do you think of that, all that is in this collection is the measly dollar and a quarter that I put in myself?' 'Well, parson,' said the janitor, 'if you had put more in the box, you would have gotten more out of it.'"

That is exactly the case with this series of lectures. We will get benefit out of them exactly according to the attention and interest we put in. We can't expect to receive our full part of the benefits that can be derived from this enterprise unless we work for it.

It has been observed in many years of close study of the plumbing and heating trades that the cause for much of the criticism directed at this business can be laid at the feet of the men connected with the trade. We have all listened to this criticism until we are sick of hearing it. Therefore I am quite sure that every man here this evening has arrived at a point where he feels that he personally must combat these critics that are tearing our business to pieces and by so doing preventing our proper progress.

I am quite sure that our shortcomings can be summed up in one short paragraph. We give entirely too much time to buying and figuring, and thus neglect the great principles of expense, investment and selling. We generate plenty of power back of our business but lack control. We run our business too loosely. We lack facts. We take too much for granted. There is not enough of the guiding hand. In other words, we do not **thoroughly** know our business.

The majority of books and articles written in an effort to set the plumbing and heating contractor right in these essentials fail because they are written for experts in system and business methods rather than for the man who must learn. This has left a very urgent need, and in an effort to fill it, T. E. B. has

A Chart of Fixed Charges or Operating Costs

Compiled from actual figures obtained from successful Plumbing and Heating Shops—Tabulated for a Growing Business.

ITEM	COLUMN	A	B	C	D	E	F	G	H	I	J	K	L
X	Volume of Business for Year	7,500	10,000	15,000	20,000	25,000	35,000	50,000	75,000	100,000	150,000	200,000	250,000
Y	Owners' Capital	750	1,000	1,500	2,000	2,500	3,500	5,000	7,500	10,000	10,000	12,000	15,000
Z	Borrowed Capital	425	675	850	1,000	1,500	2,000	3,000	4,000	4,000	5,000	5,000	6,000
	Overhead Accounts												
1	Misc. Office Expense (Stationery)	8	10	15	20	25	35	50	75	100	150	200	250
	Collections	(by the use of Cash Discount and Trade Acceptance, this item can be eliminated)											
	License Fee	3	5	5	5	5	5	5	5	5	5	5	5
	Telephone and Telegraph	65	75	100	125	125	125	125	135	145	145	150	160
	Light, Heat, Power and Water	15	20	25	50	60	60	65	75	100	100	125	125
	Stationery, Printing and Postage	22	35	55	70	85	110	150	190	235	275	320	365
	Trade Papers, Business Magazines	5	5	5	5	5	7	9	10	12	12	15	15
	Traveling Expense (Conventions, Initiation, Buying)	50	60	75	100	125	150	200	250	275	300	325	350
2	Office Salaries (Owner)	750	1,000	1,200	1,500	1,800	2,000	2,000	2,500	3,000	4,000	5,000	6,500
	Stenographer	350	500	600	600	700	750	750	1,000	1,000	1,000	1,200	1,500
	Bookkeeper				600	700	1,200	1,500	1,800	2,000	2,000	2,000	2,400
	Estimator							1,800	2,400	2,500	2,800	2,800	3,000
3	Auto Expense (Part. ed Owner's Business Car)			360	375	400	700	700	800	1,000	1,000	1,000	1,000
	Truck or Wagon Expense (Delivering driver, where charges are made for such services per M'lg.)	350	280	425	360	406	528	608	500	600	1,125	1,000	800
	Depreciation of Wagons, Autos and Trucks	25	50	75	100	200	300	400	600	600	900	1,000	1,000
	Insurance (On Autos or Truck, where charges are made for such services per M'lg.)	3	6	12	12	15	25	50	70	125	150	150	150
4	Advertising and Donations	110	150	225	285	325	375	450	600	750	900	1,050	1,200
5	Dues (Association Plumbers and Steam Fitters)	36	36	36	50	50	50	50	50	50	50	50	50
	(Chamber of Commerce)		25	25	25	25	25	25	25	25	25	25	25
	(Other Commercial and Civic Organizations)						15	25	35	45	50	65	75
6	Interest on Owners' Capital	52	70	105	140	155	245	350	524	700	700	840	1,050
	Interest on Borrowed Money	28	35	52	70	105	140	210	280	280	350	350	420
7	Legal Expense				10	15	25	30	40	50	75	100	125
8	Taxes (City, State and County)	15	30	40	50	70	100	150	225	250	275	350	450
9	Misc. Store Expense	3	5	5	10	12	15	20	25	40	65	75	75
10	Allowances and Bad Accounts	37	50	75	100	125	150	200	300	400	500	500	500
11	Non-Productive Labor (Labor Not Chargeable)	8	10	15	20	25	35	50	75	100	150	200	250
	Foreman (Where ½ of Foreman's time is charged as productive labor)						625	625	625	625	625	1,250	1,250
	Stockman							600	1,000	1,500	1,800	1,800	1,800
12	Fire Insurance	5	9	11	15	19	26	37	56	75	100	150	225
	Liability Insurance	8	64	128	128	184	128	192	192	256	256	320	320
	Business Insurance	37	50	75	100	125	175	250	375	500	600	700	800
13	Rent (Shop and Warehouse, Garage and Yard)	180	240	300	480	600	780	1,000	1,500	1,500	1,800	2,000	2,500
14	Depreciation (Stock, Equipment and Buildings)	50	50	75	100	100	75	100	150	250	350	500	800
15	Damaged Material	4	5	7	10	12	18	30	45	60	75	100	125
16	Tools (Repairs and Depreciation)	15	20	30	40	50	70	100	150	200	300	400	500
17	Workman's Comp. Ins. (Based on Journeymen at $5.00 per day)	24	41	73	98	122	147	179	277	391	522	652	815
18	Misc. Shop Expense	5	5	10	10	13	20	30	50	60	60	75	100
	Oil, Candles, Paint, Gasoline, etc.	(These items are merchandise, and should be charged to the individual job requiring them)											
19	Total of Fixed Charge = Operating Cost	2,263	2,941	4,239	5,663	6,783	9,234	13,115	17,009	19,804	23,590	26,842	31,075
20	Percentage of Overhead (To be added to the cost of labor and materials)	49.7%	47.8%	45.1%	45.2%	42.5%	40.8%	40.5%	33.3%	27.9%	20.9%	17.3%	15.8%
21	Percentage of Overhead (Based on sale price.)	30.2%	29.4%	28.3%	28.3%	27.1%	26.4%	26.2%	22.7%	19.8%	15.7%	13.4%	12.4%
22	Discount (That can be given from 10% list to make 10% profit.)	17.6%	18.7%	20.2%	20.2%	21.6%	22.5%	22.7%	26.7%	29.6%	33.5%	35.5%	36.3%
23	Discount (That can be given from 15% list to make 10% profit & 5% is allowed for trade.)	13.4% +5%	14.4% +5%	16% +5%	15.9% +5%	17.5% +5%	18.5% +5%	18.9% +5%	22.8% +5%	25.9% +5%	30% +5%	32.6% +5%	32.9% +5%
24	Net Cash Profit for Year	682	909	1,364	1,818	2,273	3,182	4,545	6,818	9,091	13,636	18,182	22,727

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CHECK YOUR OVERHEAD WITH THESE FIGURES

written this series of lectures, so that the men actually engaged in the business might gather together in groups throughout the country, listen to these lectures and then discuss in their own words the topics outlined. That is the most logical way to get your full share of the "meat" that has been prepared to serve.

We know this plan is thoroughly practical and workable. We know that it will help the plumbing and heating contractor to keep things straight in his business without using too much energy in the keeping. We know it will show him how to get enough system without the risk of getting too much. We know it will point out to the contractor exactly how to combat critics who would tear down his business, and who make him appear as a highwayman to his friends and the public.

It is a well recognized fact that the game of business is not an easy game. The business standards of today are rising rapidly. Methods of twenty-five years ago or even ten years ago won't do now. The man who refuses to believe this is surely doomed. He may get by but he won't get out of the "tin lizzie" class unless he mortgages his soul.

Just now this question rambles through our minds. "Is it harder to conduct the right kind of business today?" Yes, and no. It is true that details are more numerous, and the new problems of competition are becoming more difficult daily. These sorely test the courage and staying power of the business man.

But it is also true that these very problems open correspondingly greater avenues of development. The years that have gone never did offer such golden opportunity as the years that are to come, if the contractor will adopt the new way of conducting his business.

In these modern days success is mainly a question of one's own ability to line up with modern opportunity. The man who would win must play the game the new way, and he must know the game he is playing. He must know that having on hand a large number of big contracts does not signify that he is a big contractor unless he himself is big enough to know where the cost line starts and stops.

For those who apply the methods of yesterday to the plumbing and heating problems of to-day the path is hard and rough. They usually break an axle before they get to the journey's end. For those who develop with the times, who take advantage of suggestions and information that can be obtained, success is no more difficult today than it was at any previous period. (It never was easy to gain success.) It always requires earnest effort. Success wouldn't be really worth while unless it did.

The man who would lead or even be among the marchers today must have efficiency for his middle name. But this word need not stagger him or keep him back, for efficiency is to be had by anyone if they will but pay the price. The price? It means devoting part of your time to conscientious study of your business problems. It means being wide-awake, thinking, working, fighting. It means having your business on a system that will show up its weakness and point out remedies. It means having at your tongue's end facts to combat the words of any critic or the arguments of any dissatisfied customer who makes an unjust complaint. (It means refusing to be controlled by some incompetent competitor.) It means keeping your accounts as they should be kept, and not allowing them to take care of themselves. It means keeping your credit above par, discounting your bills, and promptly collecting what is coming to you. It means to have in stock the things people have a right to expect to see in a plumbing and heating establishment. It means knowing what people need and then telling them about it in a way that will make them want it. It means having courage to admit you're wrong when you're wrong, and losing no time in getting right.

That is the price. The price of efficiency that leads to success. What is there in it you can't pay? If a man has ability, willingness to work and learn, and adequate capital, there is no reason why he should not attain at least normal success in the plumbing and heating field.

If he adds to these earnest study of the lessons taught by modern merchandising experience, and conscientiously applies them to his own business, he has more than an even chance of success in the best sense.

Success means more these days than in the days of old. When a man wins he really wins something worth while.

Last year there were failures in the United States that caused a loss of $203,000,000. Why all these failures? Of the total number of failures, Bradstreet figures over 80 per cent. were caused by personal shortcomings of the individual himself, or in other words, inefficiency.

Going over the reports of this same agency from the year 1890 up to 1912, the lack of capital was the leading cause of failures. But since that time incompetency has forged to the front until today it has reached the high figure of over 80 per cent.

There is nothing in this report at any point to show that times were wrong. Not a word about the business man having no chance—just incompetency — inefficiency—unfitness.

Let us pause here and ask this question: How many of us does the shoe fit?

If more plumbing and heating contractors really knew the ins and outs of what they are trying to do, there would be fewer failures, less talk about lack of opportunity or competitor's cutting prices.

It is a sad mistake for men to rush into business blindly, without giving enough thought to the future and the problems it surely will bring. It is a sadder mistake to disregard these problems as they arise, depending on a mere "hunch" that things must be all right because they look that way. Analyze things before you start.

Or, if you have gotten into a rut, stop now, this very day and from now on.

Pay day always comes. The longer it is held off, the more exacting are its demands. If more business men would recognize this and prepare for it, there would be more fortunes made in the plumbing and heating field.

Every business must grow or it will die. It can't stand still and live. The age is too fast for that. And the very act of infusing new life into your business, lining up with present day methods of doing things, preparing for the further changes that are to come; these can change the plumber from a mere tinker into a business man.

To insure success, a master plumber or steamfitter should build his business on the right foundation and keep in closest touch with it ever after.

If you do not know your business story well enough to say it backward, you had better introduce yourself at once, and rush the acquaintance to an intimate association as soon as possible.

Many plumbing and heating establishments are going wrong while their owners think everything is on velvet. Not until the sheriff takes charge can they be persuaded that things need a radical change.

Money may be coming in steadily. The firm's high place in the community may seem sure. A general air of thriving prosperity may apparently rule over all. Yet that business may be just on the point of smashing on the rocks.

Of course you have heard the story of the plumbing contractor who specialized in flat buildings. He was known as a specialist on this class of work and he intelligently advertised the fact. His trade reached surprising proportions for a town of that size. He was the pet of every architect and builder, for he was always the low bidder, not much to be sure, but enough to get the job. He increased his working force from six to forty men. He bought a home and swapped his Ford for a six cylinder. Then came a lull in the business and he went broke.

When the expert accountants from the supply houses finished piecing together the shattered fragments of what once was a promising business they discovered the plumber had actually been losing from $100 to to $1,000 on each and every flat building he had done. He had failed to figure carefully enough when computing the various prices he should charge. He did not allow a large enough figure for his cost of doing business.

True, he missed it only by a few dollars but these few dollars on each job broke him. How many plumbing contractors are in this same boat?

This little story shows that you cannot trifle with figures. There are just one

hundred cents in a dollar. No amount of clever argument, no showing of apparent prosperity, no book full of large contracts, can change this unassailable fact. If the dollars you take in contain only ninety-nine cents you will, if that keeps up, go broke just as surely as one hundred times one equals one hundred.

Here's the way to success. Know your business. Apply to everything the test of actual figures, and believe what the figures prove to you. Admit, at least to yourself, that conditions are as they show you.

Thus, at this meeting, we begin a study of the fundamentals that will equip you and me with the proper knowledge to meet the demands of modern business management. This will be accomplished by reading to you lectures prepared by our National Trade Extension Bureau which contain facts and figures that have been compiled through nation wide research work.

The first subject we shall discuss is that relating to the unjust criticism to which the plumbing and heating contractor has been subjected and which is founded entirely upon misunderstandings which have multiplied in the minds of the public. Perhaps we as a craft are largely to blame for this condition. We have been slow about showing the true facts and figures to establish the true worth of our services. It is our aim, through the use of authentic data, to arm every plumbing and heating contractor so that he can combat and correct this feeling which, through years of misunderstanding, has developed into a prejudice. (We can prove the real worth of our craft to the community in which we operate only after becoming thoroughly informed ourselves.)

It is therefore our desire to point out to the trade, through authentic comparisons, charts and illustrations, how to show that the service of the plumbing and heating contractor is indispensable to a community; that his profits are only a minimum when measured with other industries; that the thought that a plumber's bill is a shining example of inflation is purely a wrong idea based upon misunderstanding.

We believe that by comparison it can be proved to any fair-minded person that this business, as an industry, does not return to those engaged in it profits which can be judged excessive.

From time to time the plumbing and heating contractor has been made the subject of jests and cartoons. We know these have provoked much, yet cheap criticism. Still we are of the belief we can convince the average thinking person that these articles, editorials, cartoons, etc., are the outcome of ignorance of the facts.

Our friends, the critics, seem to lose sight of the service which the plumbing and heating contractor is rendering society. They have failed to give due consideration to the magnitude of the part he plays in the provision of comforts and protecting health. They seem to forget that fifty years ago the bath room and radiator heating were only found in the homes of the wealthy, and that these were in their crudest forms. They fail to appreciate that the plumbing and heating contractor is the one responsible for an extensive and general improvement of those conditions.

Questions and Answers

Question.—Would you give the amount to be allowed for 45 degree elbows centre to centre measurements in fittings from ¼ inch to 4 inches? For instance, say I wanted 3 feet centre to centre of 45 degree elbows, what amount should I deduct for each elbow to get the length of pipe required?

(Plumber, Fredericton, N.B.)

Answer.—The accompanying drawings and table show standard distances from centre to ends of screwed cast-iron fittings.

Fig. 1 shows a 90 degree elbow.
Fig. 2 shows a tee.
Fig. 3 shows a cross.
Fig. 4 shows a 45 degree elbow.

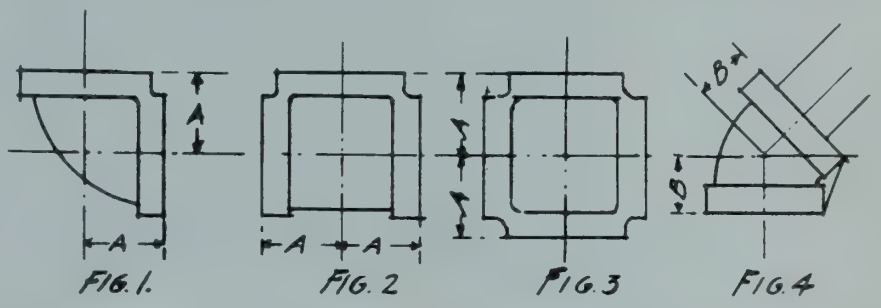


FIG. 1. FIG. 2 FIG. 3 FIG. 4

It will be noted that the distance corresponding to the letter A applies to a figure that is uniform for tees, crosses and 90 degree elbows on the same size of pipe.

Table

Size	A.	B.
¼	13-16	¾
⅜	15-16	13-16
½	1⅛	⅞
¾	1 5-16	1
1	1 7-16	1⅛
1¼	1¾	1 5-16
1½	1 15-16	1 7-16
2	2¼	1 11-16
2½	2 11-16	1 15-16
3	3⅛	2 3-16
3½	3 7-16	2⅜
4	3¾	2⅝

Thus, for a line of 4-inch pipe reaching to centres of 45 degree elbows placed 3 feet apart, you should deduct 5¼ inches to allow for the 2⅝ of each elbow.

When two parallel lines of pipe are to be connected by means of a 45 degree branch, the length of the required branch pipe may be found by the following rule:

Multiply the distance the lines are apart by 1.4142. This will give the actual length from centre to centre of elbows. From this there should be deducted the distance between the ends and the centres of the fittings.

Example.—What length of pipe is required to connect two parallel lines of 1-inch pipe, placed 5 feet apart? The connections are to be made with 45 degree elbows.

Solution.—Multiply 5 (feet) by 1.4142 and we have 84.85 inches. Deducting 1⅛ inches from each end, to allow for each fitting, we have 82.60 inches. This makes no allowance for threads.

RETURNS OF INLAND REVENUE AND CUSTOMS FOR SEPTEMBER

Ottawa.—There was a net increase of $7,218,367.99 in the Inland Revenue returns for the month of September, according to the statement for the month issued from the office of the deputy minister of the department.

The total inland revenue collected for the month was $11,921,287.57, a gross increase of $7,455,481.75 over the revenue for the corresponding month of 1919. The chief increase came from war tax, which brought in $8,709,416.21, an increase of $7,455,298.25 over the war tax returns for the month of September, 1919.

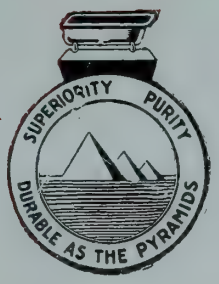
GREAT BRITAIN'S EXPORTS TO CANADA OF PIG LEAD

Great Britain during the month of August exported 80 tons of pig lead to Canada; during July, 40 tons, and during June, 228 tons.

Imports from Canada of refined and G. O. B. spelter in August amounted to 103 tons; in July to 125 tons, and in June to 50 tons.

Bath Room—Plate "B." From Page 6 "For the Home" Catalog.

100,000 Bath Tubs Will be Needed



IT is a known fact that there is a tremendous shortage of houses in Canada, amounting approximately to between 90,000 and 100,000. In other words, families have found it necessary to double up to an extent never before known in Canada. There are cases in which practically every house on a street is sheltering from two to three families. It is claimed by the chief of the Housing Division of the Board of Health in Toronto that 75% of the ordinary 6 and 8-roomed houses have more than one family in them.

This is representative of prevailing conditions in the cities of Canada and to more or less extent in rural districts. This urgent need for homes should result in early resumption of an extended building programme and, naturally, the use of more bath tubs as well as kindred toilet and sanitary equipment. There is always one thing to be remembered and that is, where there is an urgent need and a shortage at the same time, the matter of price enters into the matter only in a secondary way.

Canada has the price and needs the houses. There can be only one outcome—you will have to supply the plumbing. Encourage early building by putting these facts before the builders in your district.

Port Hope Sanitary Mfg. Company, Limited

Factory:
PORT HOPE, ONTARIO
TORONTO SHOW ROOMS
119 King St. East

WINNIPEG OFFICE
405 Tribune Bldg.
HALIFAX OFFICE: McCurdy Building, Hollis Street

Head Office:
ROYAL BANK BUILDING, TORONTO
MONTREAL SHOW ROOMS
234 Beaver Hall Hill

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Ingersoll.—L. H. Ecqhardt has purchased the plumbing and tinsmithing business conducted some time ago by P. W. Robins, and is now in possession of the building formerly occupied by E. J. Holder, King Street East.

CONTRACTS AWARDED

Hamilton. — Contracts for sanitary conveniences were awarded by the city council to E. J. Madden and W. H. Bakelake.

PERSONAL

Montreal.—Harry M. Patterson, president of the Stratford Brass Company, Ltd., spent a few days in Montreal this week.

AUTHORIZED TO ATTEND CONVENTION AT ST. LOUIS

Hamilton.—City Engineer Gray was authorized by the city council to attend the convention of the American Society for Municipal Improvements at St. Louis.

INCORPORATIONS

The Quebec Marine Co. has been incorporated with a capital of $25,000 to carry on the business of dealers in furnaces, stove pipes, radiators and everything necessary for installation of heating systems, plumbers' supplies, etc., their chief place of business to be at Quebec, Que.

A. G. McINTYRE GOES TO COLUMBUS, OHIO

Toronto.—A. G. McIntyre, of McIntyre & Taylor, is atttending the meeting of the American Foundrymen's Association in Columbus, Ohio, and is expected to be away for a week or so.

NEW PLUMBING BY-LAW PASSED BY COUNCIL

Peterborough.—The new plumbing by-law was ushered through council by Ald. Jones as chairman of the Property Committee.

Aldermen Gainey and Marrison suggested that copies should be given to every member before the council's approval of the new by-laws was formally passed.

Ald. Jones and other members of the committee gave the assurance that every section of the new by-laws had been carefully considered, and the council accepted it.

WESTERN ONTARIO NEWS

Fred Merrick, of Strathroy, Ont., is interested in prices of plumbing and heating for new $4,500 residence he plans to erect this fall.

* * *

William Dace, of 738 Nelson St., London, Ont., is preparing plans for a new dwelling to cost $5,000 and is interested in prices of plumbing and heating.

* * *

Plans are being prepared at London, Ont., for sewer extensions on the Wellington Road to cost $100,000 to take care of a new residential and industrial section.

* * *

The Gartshore Thompson Co., of Hamilton, Ont., has been awarded the contract for water mains costing $15,000 by the Utilities Commissioners at London, Ont.

* * *

Eggett & Co., London, Ont., have been awarded the plumbing and heating in connection with the new factory being erected for the Ruggles Motor Truck Co.

* * *

E. H. Russell, for twenty-five years one of the most prominent members of the trade in London, Ont., has sold his home and leaves early in November for Australia where he intends to reside. Mr. Russell was for many years a member of the London Board of Health on which he performed excellent service and gave extremely valuable suggestions. He was also a member of the executive committee of the Ontario Society of Domestic Sanitary and Heating Engineers. He leaves behind him, not in London only but throughout Ontario, a host of real friends.

* * *

Plans are to be prepared at once at Dutton, Ont., for a community hall to embody rest rooms and public lavatories. Prices are wanted on this equipment. Councillors Crowder and Lock are looking after the preparation of plans and the building it is estimated will cost $15,000.

* * *

At a recent meeting of the Builders' Exchange at London, Ont., Ben Noble, of the plumbing firm of Noble and Rich, was one of those who in a most outspoken manner condemned the action of the board of directors of the Western Fair in raising the entrance fee from twenty-five to fifty cents. The Exchange carried a strong resolution of protest urging that new blood be secured for the Fair Board.

* * *

Work on plans for a new Collegiate Institute at London, Ont., to cost $750,000 is being rushed by Architect L. E. Carrothers and tenders will be called as soon as possible. The most modern plumbing and heating equipment will be installed and prices are wanted immediately on all materials.

* * *

Dr. H. W. Hill, of the Institute of Public Health, at London, Ont., is conducting a vigorous campaign of education in connection with sanitation and general health matters. He is not only giving many addresses but by means of printed matter is reaching out through all Western Ontario in an effort to inaugurate better conditions in the homes.

* * *

John Putherbough, of 1,006 Wellington St., London, Ont., is busy with plans for a new residence to cost $15,000. Hot water heating will be installed and modern plumbing and prices are wanted on these.

* * *

Not even in pre-war days have men in the trade been so busy or faced such a busy winter as right now in London, Ont. There is an acute shortage of homes and with nearly $5,000,000 worth of new work in schools, factories, new homes and a new hotel ahead the one trouble seems to be to get enough skilled men and material.

SEWER CONNECTIONS FOR OAKWOOD DISTRICT

Toronto. — Representatives of York township recently waited on the board of control to ask for sewer connection in the Oakwood district. Works Commissioner Harris said this sewer was already overloaded, and by making more connections they would be jeopardizing the right of people in this connection in the city.

HOMESIDE WATER MAINS

Hamilton.—Dr. J. S. McCullough, Provincial Health Officer, has approved of Hamilton proceeding with the laying of mains in the Homeside section. In the absence of the usual 10 per cent. guarantee, means, city officials declared, that construction work will be started almost immediately.

Mr. James Roberts, medical health officer, and Controllers O'Heir and Jutten went to Toronto for a conference with the Provincial Officer.

J. HOLLAND NEW SUPERINTENDENT OF PORT HOPE SANITARY MFG. CO. PLANT

Port Hope.—James Holland has been appointed superintendent at the Port Hope Sanitary Mfg. Co. plant to succeed A. E. Pipher. Mr. Holland was employed in the factory here when it was under the name of Standard Ideal, Ltd.

WATER SYSTEMS TO BE CONSIDERED

Port Credit.—At the regular meeting of the village council a definite date for holding the vote on the Water System By-law will be decided upon.

Reeve Parkinson and other members of the council have intimated that the vote would be submitted at as early a date as possible.

POSSIBLY METERED WATER SERVICE FOR THOROLD

Thorold.—Mr. Laughlin told the council the time would come when Thorold would have to meter the water. If the water were provided to the town by a private company instead of by a municipal system there is little doubt that the time is here, and has been here for some time, as the system is acknowledged to be worked to capacity, while it is known that the general wastage common to the present system is going on continually.

NEW RESERVOIR WILL BE FURNISHED SOON

London.—In spite of the difficulty of obtaining cement, the addition to the Springbank reservoir will be completed by the end of October, A. O. Hunt, assistant general manager for the public utilities commission, is quoted as having said. But for the scarcity of concrete the work would have been finished sooner than that.

NAPANEE CARRIES BY-LAW TO PURCHASE WATERWORKS

Napanee, Ont.—Two important by-laws were carried here by substantial majorities. One authorized the purchase of the local waterworks and the other the purchase of the canal and the land adjoining, occupied by two factories and the pumping station of the Napanee Waterworks Company.

REGINA'S WATER SUPPLY

The city of Regina will either have to use Saskatchewan River water or as an alternative must develop additional watersheds in the vicinity of Boggy Creek, in the opinion of Major A. J. McPherson, chairman of the Saskatchewan Waterway Commission.

If the city continues its present rate of development, said Mr. McPherson, it is doubtful whether the Saskatchewan River water can be brought here much before it is actually needed to meet the growing demands.

Major McPherson has prepared figures showing the total annual cost to the citizens of the adoption of either of these alternative schemes on the basis of daily consumption of 2,750,000 gallons, and here it should be pointed out that the present average daily consumption is approximately 2,250,000 gallons.

The figures of the comparative cost of the two schemes are based on the assumption that if the Saskatchewan River project is adopted the Boggy Creek plant, pipe line and storage facilities will be used as a part of that scheme. On that basis Mr. McPherson estimates that the first year Saskatchewan River water is used in Regina it will involve a total cost to the citizens of $121,123, as compared with $107,925 should a scheme to further develop springs in the northeast be effected.

Major McPherson considers that the small difference in favor of the further development of local sources is far outweighed by the advantage of the Saskatchewan River as a source of supply, when it is remembered that the initial cost will cover facility for an augmented supply up to six million gallons.

While the actual cost of delivering 2,750,000 gallons a day from the South Saskatchewan River to Regina is estimated to be $317,185 annually, the use of the Boggy Creek plant will permit of some reductions from this total.

STEEL PRODUCTION FOR CANADA

As a result of the shortage of the supply of steel from the American mills, the production of steel in Canada is steadily increasing. The plant of the Baldwin Canadian Steel Corporation, which is nearly completed, comprises one unit of eight mills, the original plan of installing forty mills having been temporarily abandoned owing to the shortage of electric power. It is expected to be in active operation turning out tinplate very shortly, a number of expert workmen having been brought over from Wales. Colonel Wright, one of the directors of Baldwins Limited, who has made an inspection of the plant, described it as one of the finest sheet and tinplate mills he had ever seen, and stated that as soon as the company's full requirements of 20,000 horsepower are assured the original designs of the company will be carried out, involving an expenditure of $3,000,000.

Interesting News from London Plumbing Circles

LONDON, ONT.—Interesting developments in connection with sanitation and public health matters are taking place in connection with a campaign inaugurated by the local Board of Health. One of the first things to be settled apparently is whether the new provincial regulations outlined in a previous issue of Sanitary Engineer are effective or not. Discrepancies between the present civic by-laws and the proposed provincial by-laws occasioned a great deal of discussion at a recent meeting. As the board could not come to any understanding it was decided to put the case up to the Provincial Health Department for a decision. Ernest H. Russell, a member of the board, and also one of the best known sanitary and heating engineers in the city, declared that it was doubtful whether any sanitary engineer could collect payment in a court of law for work not done according to the provincial specifications. He argued that they are merely proposed regulations and will not be law until they are signed by the Lieutenant-Governor of the Province. This, he maintained, has never been done. The question as to whether the regulations are law if they have been approved by the Provincial Board of Health was raised. No one could answer this so the matter will be taken up with the authorities in Toronto.

The board has waged war on dirty restaurants, and it is claimed that many of the local eating places are insanitary and without the equipment they should have. It is understood that some of the places have been ordered to clean up or shut up. A rather unexpected move was made by the proprietors of half a dozen Chinese restaurants in London when they engaged a solicitor to fight against the effort of the board to placard places that are regarded as unclean by Board of Health inspectors. The outcome of the scrap is being watched with a little more than usual interest as it may involve the calling in of the provincial health authorities and the passing of new laws to cover the points at issue. In the meantime the Board of Health is making free use of the local newspapers to aid their campaign, and no little public sentiment is being stirred up.

The city council is busy with plans for greatly extending the sewage disposal systems, and an outlay of almost half a million dollars will be made on a new sanitary sewer system for West London and extensions in South London. In both of these areas a large amount of house building is in progress and the demands for proper sanitary arrangements are so insistent that they cannot be ignored. Incidentally the activity in building means a large amount of splendid work for the local sanitary and heating engineers as the homes are mostly of the better class.

News from Montreal Plumbing Circles

MONTREAL.—The strike of Montreal plumbers which started a couple of weeks ago has been prolonged, and bids fair to continue as many of the masters will not agree to meet the demand of the journeymen. The strike involves between 500 and 600 plumbers, and the cause of the strike was that the demand of the men belonging to Local 144 of the International Union would not be recognized by the master plumbers. Among those things they are asking is a wage of 90 cents per hour, having reduced their demand from $1 per hour, this amount having been definitely turned down by the masters. The original demand of $1 per hour was made some months ago, and while the men were then out on strike, to a considerable extent many of them returned to their work. The latest move of the men came as a surprise to many and the latest reports indicate that many of them are still out.

Masters Hold Firm

The Master Plumbers met and considered the matter early in October, but took no definite action. For the most part individual members of the local association disapprove of the union principle and assert that they will hold firm against the demands of the union. The masters, to a great extent, favor the "open shop" and are willing to pay good men what they are worth, but they do not recognize that a man, just because he is a member of the union, is entitled to draw more pay than he can earn. This contention has been upheld for many years by some members of the association, and although there may be good points to the union ideas they maintain that they will not pay a man a big wage who cannot earn it.

For several months past matters have been running quite smoothly and the masters have been able to carry on without much difficulty. It appears that, allured by the prospects of receiving larger wages at outside points, many plumbers left Montreal for other cities west of Montreal, and this caused some shortage of plumbers in the city. At the same time good men have been able to secure steady employment at favorable wages, and the contention of the Master Plumbers' Association is that good men have no difficulty in securing a high rate of wages per hour.

Was Much Improved

In discussing the situation with Capt. D. A. Bethune, president of the Montreal Master Plumbers' Association, he informed Sanitary Engineer regarding the arrangement made some months ago with the National and Catholic Union:

"The arrangements with the union are working out very well, and are perfectly satisfactory," he said. "They are loyal, and with the men belonging to the syndicate we are experiencing no trouble. In time they will be able to afford more relief—when there is larger membership but at present the strike is holding up work to some extent. Jobs that have been in hand for some time have been temporarily stopped, and other work has naturally been deferred owing to the starting of the strike. People will not begin work when they are not sure of being able to complete it.

"The men are asking for 90 cents an hour, a forty-four hour week, and time and a half for the ninth hour, and double pay for overtime after the ninth hour should they exceed the 8-hour day called for in their demand."

See No Reason for Change

A report was presented to the meeting outlining the strike situation, and the meeting decided that this is not the time for a reconsideration of the wage schedules and other agreements. The working of the Catholic Syndicate is highly satisfactory, it seems, and for this reason the masters see no reason why the men should walk out.

One of the contentions here is that the cost of carrying out contracts is greater to the master plumbers in Montreal than it is in many other Canadian centres. This, in large measure, it is contended, is due to the steadiness of the employment here, the men being carried along through slack seasons, whereas in some places they are laid off in winter.

The Outlook Beclouded

Unfortunately—according to the best information obtainable by Sanitary Engineer, the outlook is by no means clearly defined. Some contracts have been in hand for a time and must be proceeded with. In such cases the masters have necessarily had to concede the demands of the journeymen and meet their wishes. This, it is understood, would not have been done had the conditions relative to existing contracts been different. The very fact that many of the masters are standing firm reveals that there is a desire on the part of the Master Plumbers' Association to proceed as has been done for years.

In addition to a few other reasons, there is, just before the cold weather sets in, a demand for men to complete plumbing, and the masters who have regular customers who expect service naturally wish to maintain the confidence of their patrons by completing such work. Quite a number of residential properties have been under way, and the owners are clamoring for these.

The present feeling among the master plumbers is one of a high order. This is instanced in that the masters have agreed to distribute available men to the best advantage in helping the trade complete its work with the least possible hardship.

Brings in Report

The chairman of the legislation committee reported that in Detroit last week 24 labor organizations had been named in a drastic injunction rendered by U.S. Federal Judge Tuttle, in which practically every labor union and labor leader in Detroit is restrained from picketing or in any way interfering with work being done by members of the Detroit Association of Sanitary and Heating Engineers. The Detroit Federation of Labor and Detroit Building and Trades Council are included in the writ. This order is one of the outcomes of a long fight to make Detroit an "open shop" city.

Big Revenue from New Taxation

Luxury and Special Taxes Yield $20,855,859 for Last Five Months Compared with $7,778,401 for Same Period Last Year—Current Expenditure Also Higher.

SO much commotion was caused over putting the Governmental machinery into operation for the collection of heavier taxes from Canadian merchants and others, that the plumbing trade will be interested in the following figures showing increase in receipts and comparison with expenditure of the Federal Government.

Receipts from inland revenue, as a result of luxury and other special taxes imposed, have taken a big leap forward. For the five months closing with the end of August, receipts from inland revenue were $20,885,859; during the corresponding months of 1919 they were $7,778,401. For the month of August alone, inland revenue receipts were $5,807,114; in August, 1919, $1,638,840.

The figures appear in the monthly statement issued by the Department of Finance. For the first time, the statement gives details both of ordinary revenue and ordinary expenditure. For the five months ending August 31, ordinary revenue and ordinary expenditure compare as follows:

Ordinary revenue, 1920, $183,527,579; 1919, $132,386,719. Ordinary expenditure, 1920, $135,675,321; 1919, $97,579,339.

In explanation of the heavy increases in ordinary expenditure it is explained that this year's figures include the first interest payment on last Victory Bond.

Revenue from income tax during the month of August was $7,481,647, compared with $1,383,849 in August, 1919; from business profits tax, $2,315,946, in comparison with $5,429,161 collected from business profits in August, 1919.

The total net debt after deducting non-active assets, now amounts to $2,234,496,915.

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

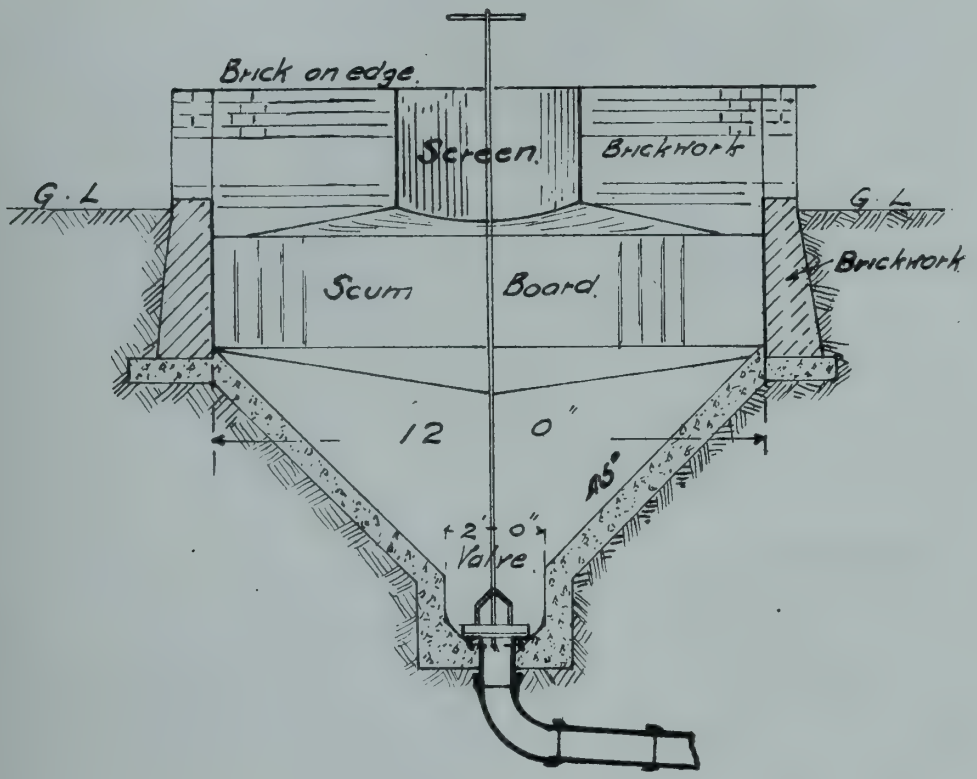


FIG. 24

Article No. 18 of the Series

ILLUSTRATION NO. 24

(Continued from last issue)

SEWAGE DISPOSAL FOR SMALL COMMUNITIES

CRUDE sewage cannot be successfully treated on filtration areas or beds as the suspended matter forms a scum on the surface, thus checking and impeding aeration of the soil or bed, whilst at the same time silting the filtering media up and lessening the capacity of the bed.

There are many various opinions as to the best form of tank which will successfully deposit the suspended solids whilst at the same time encourage the degradation of the organic matter both in suspension and solution and everything depends upon the chemical composition of the sewage to be treated: the best and most successful tanks can be classified under three headings, namely sedimentation tanks, precipitation tanks and liquefying tanks.

NEW CANADIAN PATENTS

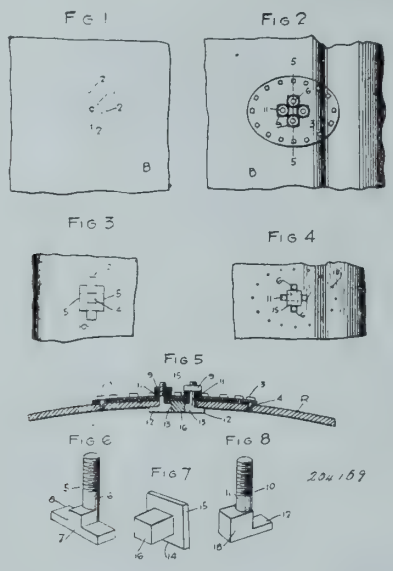
(Issued for Plumbing and Heating Goods)

No. 204159. BOILER PATCHES.

Evander Todd, Winn, Alabama, U.S.A.

A boiler patch comprising a plurality of bolts having angular extension heads to fit the inner faces of the boiler to be patched, and a plug shaped to be inserted between and to close the space between the bolts.

A boiler patch comprising a plurality of bolts having laterally extending heads, a plug for insertion between said bolts, a water and steam proof packing for insertion outside



said boiler over said bolts, and a metal plate for clamping securing said packing to the boiler.

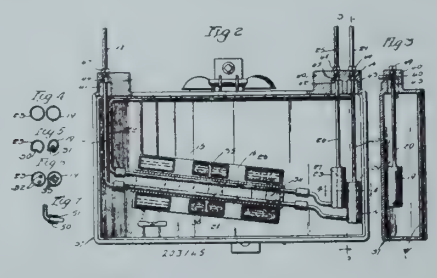
A boiler patch comprising a plurality of bolts, some of which have T-shaped heads arranged at one side thereof with a shoulder on the inner face of said head adjacent its connection with the bolt, other of said bolts having a laterally extending lip on one side and a shoulder on the other, the shoulders of both kinds of bolts being of the same height, and a plug shaped to fit between the shoulders of the bolts and having a head for resting on the inner faces of said shoulders.

* * *

No. 203145. FURNACE METER.

Ralph T. Brackett, Chicago, Ill.

A meter for the purpose specified including two associated gauges and an adjacent scale with which they are both compared, connections whereby one of said gauges indicates the difference in pressure between the ash pit and the combustion chamber of a furnace under test, and whereby the other of said gauges indicates the difference in pressure between the combustion chamber and the point of gas delivery from



the combustion gas passages of said furnace, said connections being so proportioned that the gauge readings always vary by substantially equal amounts on the scale for differing load conditions and selected conditions of economy of operation, substantially as described.

An instrument for the purpose specified comprising, in combination, a pair of gauges and a common scale therefor, one of the gauges being adapted to indicate according to the loss of pressure through the fuel bed, and the other gauge being adapted to indicate according to the loss of pressure through the combusition gas passages, and a common scale adjacent to both of the said gauges, and connections usable for placing the gauges into communication with the selected portions of the furnace under test, said connections being so proportioned that the indications of the gauges change by equal amounts when the load on the furnaces changes under certain specified conditions, substantially as described.

An instrument for the purpose specified comprising, in combination, a pair of gauges, one of said gauges being adapted to measure according to one draft condition within a furnace under test, and the other gauge being adapted to measure according to another draft condition within the furnace under test, and connections usable in placing the gauges in communication with the selected portions of the furnace under test, and means for proportioning said connections with respect to each other in such manner that the indications of the gauges change by predetermined amounts when the loads on the furnaces change under certain specified conditions, substantially as described.

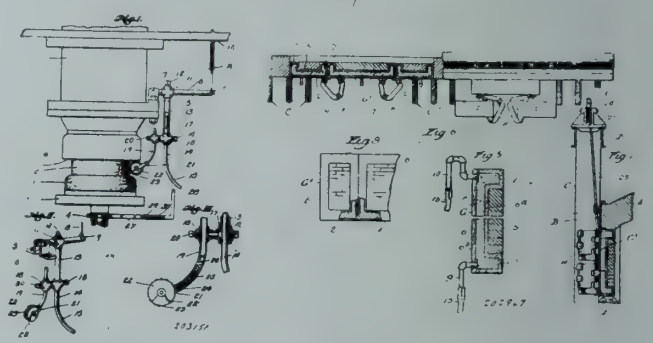
* * *

No. 202967. OPEN HEARTH FURNACE.

A portable back wall for open hearth furnaces, comprising a facing of refractory material, and a portable water-cooled jacket supporting said facing.

A portable back wall for open hearth furnaces comprising a portable main section and buck-stay wings adjustably mounted thereon, said main section and buck-stay wings having facings of refractory material, and water-cooled jackets supporting the facings.

In an open hearth furnace having a back wall opening extending lengthwise thereof, and buck-stays crossing said opening, a plurality of portable back wall sections, adapted to be arranged, end-to-end, behind said buck-stays to close said opening, each section comprising a rigid structure, capable of being inserted in place and removed therefrom, there being webs on the outer faces of the sections, and a counterweighed movable arm having a detachable connection with said webs, substantially as and for the purpose set forth.



No. 203154. INTERMITTENT BRANDER FOR SOCKET SEWER PIPE.

The combination with a pipe forming machine having a reciprocatory table, of a brander having a normal tendency to move toward the machine, and means actuated by the reciprocatory table for moving the brander away from the line of discharge of the pipe-forming machine.

The combination with a socket sewer pipe or hollow ware with bell-shaped ends machine for forming pipe lengths provided with enlarged ends, of a brander for branding indicia upon the main portion of the pipe and movable into contact therewith, and means for holding the brander out of contact with the enlarged portion of the pipe as it passes the brander, said means being effective to release the brander into pipe engaging position after the enlarged portion has passed.

The combination with a machine for forming socket pipe or hollow ware provided with bell-shaped ends, of a brander adjacent to the discharge end of the pipe-forming machine, and means having movement synchronous with a part of the pipe-forming machine to move the brander away from the discharge end thereof when the bell-shaped end of the pipe is moving through a horizontal plane, passing through the brander.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

CHANGES in prices of plumbing and steamfitting goods have not been very numerous. Lead and zinc products are a little easier with some reductions on solder and on sheet lead, but the finished article has not been affected as yet.

Some grades of cotton waste are a little lower in price, and a few lines of scrap metal and some ingot metals are also quoted lower.

It looks as if radiators will have to be added to the list of lines which are reported to be scarce, as stocks are said to be small and a difficulty in getting fresh supplies of materials is being felt.

Iron pipe and pipe fittings continue to be very scarce in the smaller sizes, and the lighter gauges of sheets and plates are scarcely improved at all.

Supplies of conductor pipe and trough are hard to procure and Canada plate is still a very scarce article.

Primary markets in iron and steel are reported to be contradictory in evidence of weakness and strength, with some lines firming and others softening. The strengthening is most apparent in wire products, pipe, and in tin plate; while the weakening is in plates, shapes and in semi-finished materials.

Unsettlement is said to mark the pig iron situation with prices difficult to determine at the present, on account of the smallness and scarcity of sales.

Trade generally appears to be quieter, with buying confined to smaller quantities, and an expectant air seems to be prevailing through the trade and markets.

MONTREAL MARKETS

MONTREAL, October 13—The most serious features of the market at present are those of the shortage of radiators and boilers. These will be scarce for the remaining part of the season, according to reports, and prices, as recently advanced, are likely to remain for some time. There is a scarcity of some lines still, such as sheets and conductor pipe and trough, and also wrought iron pipe. Metal lath is scarce. The difficulty of getting siding and corrugated iron is still great. "You can shoot a cannon ball through our warehouse," was the descriptive manner in which one large manufacturer referred to the depletion of his stocks. Enamelled ware is quiet and unchanged. Solders of all grades are lower. Range boilers are steady. Cotton waste is likely to be easier. Malleables and cast goods still are hard to get. It is possible that portland cement may be lower in price. There are some reductions on old scrap materials. The ingot list is quiet and weaker. Trade conditions are reported somewhat quieter here.

Scarcity Metal Lath Helps Restrict Building

Montreal.

METAL LATH.—There is a much greater demand for metal lath than can be supplied. This does not mean that demand is abnormal, but orders have accumulated to such an extent as to absorb more stock than manufacturers were able to provide, due to the raw material shortage. Prices are nominal, in a sense, and there is little promise of early relief.

Conductor Elbows None Too Plentiful

Montreal.

ELBOWS.—In view of the fact that there is not any surplus of stock in the way of sheets, manufacturers are not stocking up on elbows or other fittings, and there is no surplus of these. Prices remain firm under shortage of material.

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Little Conductor Pipe Now Carried

Montreal.

CONDUCTOR PIPE.—In view of the fact that demand for sheets is still greater than the supply, manufacturers are restricting the manufacture of pipe. There is a fair amount to be had, but prices show no sign of being revised downward.

PIPE (Conductor)

Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in	$6 90	15-in	$12 50
10-in	7 70	18-in	16 00
12-in	9 10		

Add 25% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Corrugated Sheets; Discounts Are Held

Montreal.

CORRUGATED SHEETS.—Greater sale could be had for these than is possible owing to the restricted material situation. Prices are unchanged. There is no suggestion of an early easing of the situation, despite the reports that have emanated from sources here and there regarding augmented supplies of the raw material.

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	12 00
No. 26 gauge	12 75
No. 24 gauge	13 75
No. 22 gauge	22 25
No. 20 gauge	23 50
No. 18 gauge	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Radiators Will Be Very Hard to Get

Montreal.

RADIATORS.—There is a steady maintenance of the price on radiators,

the makers stating that there is greater sale for them than they are able to meet. The movement is quite active, various jobs being rushed before the arrival of severe weather. Prices, as recently advanced, are still effective, with discounts shown herewith.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 2 3in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

Sheet List Nominal; Some Selling at 15c

Montreal.

SHEETS AND PLATES.—Prices are in no sense easier, the general undertone being strong. Many state that they are getting around 15 cents a pound for 28 gauge galvanized sheets, with supplies limited. The arrival of supplies from without is somewhat improved now and then, but there are such gaps to fill as to readily absorb the stock quite as quickly as it arrives.

BLACK SHEETS—		
10 gauge	....	9 25
12 gauge	....	9 30
14 gauge	....	9 35
16 gauge	....	9 45
18-20 gauge	....	9 90
22-24 gauge	....	9 95
26 gauge	....	10 00
28 gauge	....	10 10
GALVANIZED SHEETS—		
U.S. Standard—		
10¾ gauge	....	13 80
28 gauge	....	13 30
26 gauge	....	12 35
22 to 24 gauge	....	12 10
20 gauge	....	11 85
18 gauge	....	11 85
16 gauge	....	11 60
14 gauge	....	11 35
12 gauge	....	11 20
English Standard—		
28 gauge	13 00	13 50
26 gauge	12 75	13 25
24 gauge	12 15	12 65
22 gauge	11 80	12 30
18 and 20 gauge	11 35	11 85

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Restricted Sale For Enamelled Ware

Montreal.

ENAMELLED WARE.—Jobbers report a somewhat restricted sale for these goods and there seems to be a well defined attitude toward restricting buying to actual necessities. The supplies are quite adequate for present needs.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide			$40 75
Bath tubs, 5½ ft.			45 32
Lavatories—			
17 x 10" Apron F139 or P4045			12 15
18 x 24" Apron F154 or P3845 or P3847			18 70
18 x 21" Apron F169 or P4205			13 97
18 x 21" Roll Rim F197, F199 or P4655-6			12 21
Lead, tea	....		0 03½
Light copper	0 13		0 14
Heavy copper	0 16		0 17
Wrought iron, No. 1, per gr. ton	19 00		20 00
Malleable scrap (ton)	....		22 00
Pipe scrap (ton)	....		12 00
Stove plate, per ton	....		30 00
Heavy melting steel	....		20 00
No. 2 busheling	10 00		12 00
Boiler plate	17 00		18 00
Machinery cast	40 00		42 00
17 x 19" Roll Rim F241 or P4345			9 95
Sinks, roll rim, 18 x 30 in.			18 26
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 94	$5 88	$5 83
18 x 30	6 82	7 18	6 71
20 x 30	7 81	7 75	7 70
Steel Baths with Steel Rim—			
4 ft. 6 in.			$17 87
5 ft.			17 87
Enameline Baths with Steel Rim—			
4 ft. 6 in.			$17 32
5 ft.			17 32
5 ft. 6 in.			17 87
6 ft.			19 25

Demand Has Held For Range Boilers

Montreal.

RANGE BOILERS. — Considerable numbers of range boilers have been sold to the trade of late, and this is one line of which there has been a fairly adequate supply during the season. At the same time the situation shows no easing with regard to price as the plate situation is not back to normal. The heavier plates are easier to obtain than the lighter, and for this reason boilers are more plentiful than many other products made of sheets.

Range Boilers—	Standard	Ex.Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66 gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Cotton Waste in Changing Market

Montreal.

COTTON WASTE.—Prices have been changing on the raw material in New York. On raw waste of various kinds it is stated that fluctuations of from 50 to over 200 points have been manifest in the past week, and there is likelihood of the various quoted prices to the trade being lower. There is a fair volume of business.

WASTE		
Cream, Polishing	....	0 28
WHITE		
XXX	....	0 23
XX	....	0 21½
X	....	0 20
Japanese	....	0 17
XXX	....	0 24
XX, grad.	....	0 22½
XLCR	....	J 21
X Empire	....	0 19½
X Press	....	0 17½
X Special	....	0 15½
XC	....	0 18½
COLORED		
No. 1	....	0 18
No. 7	....	0 16
No. 1A	....	0 14½
No. 1B	....	0 12½
Fancy	....	0 19
Lion	....	0 17
Standard	....	0 15
Popular	....	0 13
Keen	....	0 11

Above lines subject to trade discount for quantity.

Not Easy to Get All Sizes Fittings

Montreal.

PIPE FITTINGS.—There has been some difficulty in getting all sizes of pipe fittings. Both cast and malleable goods are in short supply still, as reported in previous issues of Sanitary Engineer. The conditions will improve, it is hoped and expected, in due time, but so far behind are manufacturers that this condition will doubtless be deferred.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	Plus 50%
Do., 2½-in. and larger	8%
Nipples, up to 4-in.	60%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4-in. and under	30%
Couplings, 4½" and larger	Net list

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Pipe Stock Short; Demand Exceeds Supply

Montreal.

WROUGHT IRON PIPE.—Plumbers state that they are unable to obtain such supplies of various pipe as they need from week to week. The situation is difficult as regards small sizes of both black and galvanized pipe, and even jobbers are "up against it" frequently. The scarcity of skelp has had much to do with this. Prices hold unchanged.

LIST NO. 46

Standard Buttweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.05	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$ 38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2.66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4.39	4.39	5.21

Lowered Prices on Scrap Material

Montreal.

SCRAP MATERIALS.—Dearth of demand has had the effect of lowering quotations on old scrap copper, brass and zinc. Tea lead and busheling and pipe scrap are also quoted down. There may be an improved demand from mills which are again in operation and if this takes on a definite stride there will soon be an improved undertone to the market. The least affected lines from the standpoint of prices are the heavy cast materials, these still bringing good prices.

Dealer's Buying Prices

Automobile tires	....	0 01
Yellow brass	0 07	0 08
Red brass	....	0 15½
Light brass	....	0 05½
Scrap zinc	....	0 03¼
Lead, heavy	0 05	0 06

Changes Are Absent on Soil Pipe and Fittings

Montreal.

SOIL PIPE, FITTINGS.—Prices are steadily unchanged on soil pipe and fittings. There is ample stock to meet the trade's needs, and discounts remain unaltered on both fittings and pipe.

Soil Pipe (medium and extra heavy), net.
Do., 2, 3, 5, and 6 in., add 10% to list.
Do., 8 inch, add 20% to list.
Fittings, 4 in., net list.
Do., 2 to 6 in., 20%.
8 inch pipe and fittings, add 20% to the list.

Solder Down Again; Lead Wool at 15c

Montreal.

LEAD PRODUCTS.—Prices have again declined on solders. The whole list is reduced, wire solders being marked at lower figures, and the various grades of bar solders also being revised downward. Lead wool is down 1 cent to 15 cents per lb. Sheet lead and lead pipe are unchanged, but with pig lead easing there may be another reduction of price on these ere long.

Lead pipe, per 100 lbs.	17 00
Lead waste, per 100 lbs.	18 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	List plus 30%
Lead wool, lb.	0 15
Lead sheets, 2½ lbs.	0 13
Lead sheets, 3 to 3½ lbs. sq. ft., lb	0 12¼
Do., 4 to 8 lbs., sq. ft.	0 12
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 31½
Solder, strictly, lb.	0 29½
Solder, commercial, lb.	0 26½
Solder, wiping, lb.	0 26¼
Wire solder—	
40-60	0 33¾
45-55	0 36
50-50	0 38½
Zinc sheets, casks	0 16½
Do., broken lots	0 17

Compression Work Holds Unchanged

Montreal.

BRASS VALVES, ETC.—Prices are steady and unchanged on compression work. The volume of business is fairly well maintained, and ample supplies are forthcoming. Basin and bath cocks are steady, and in fair demand.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	list plus 20%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Cement No Higher; May be Reduction

Montreal.

PORTLAND CEMENT.—Prices have ruled without much change, but it is probable that there may be a readjustment to a more favorable price level in the near future. The makers, it is expected in some quarters, desire to increase their output, and in view of this they will probably make concessions. Meanwhile there is just a fair sale, users buying from hand to mouth.

Somewhat Lower; Prices on Ingots

Montreal.

INGOT METALS.—Prices are somewhat easier. The markets at primary points are easier on most metals and there is a tendency to buy sparingly all around.

COPPER.—The quotations are ranging at around 22 to 23 cents per lb., according to grade. Movement is limited. Some stocks have arrived here from the Old Country.

TIN.—Plenty of this is available, and the market is ruling at around 52 cents per pound.

SPELTER.—Little feature on this ingot this week, and limited sales are reported at 9½ to 10 cents per lb.

ANTIMONY.—This is selling as low as 8¾ cents per lb., but there is little demand for the metal.

LEAD.—Whether the market will decline much below its present level is not clear, but the tendencies have been easier. From 8¾ to 9 cents is being quoted.

ALUMINUM.—A price of from 35 to 37 cents per lb., and it is said that ample quantities have arrived in this market.

Higher Extras on Refined Iron Bars

Montreal.

IRON AND STEEL.—Prices on iron and steel remain unaltered, but the net extras on refined iron are higher. These average around $1.50 per 100 lbs., but are undefined, as the mill state they cannot, from week to week, be sure of what extras should be charged, owing to the condition of labor, etc.

IRON AND STEEL.

	Per 100 lbs.
Common bar iron	5 15
Refined iron	6 15
Mild steel	5 30
Band steel	5 30
Iron finish machinery steel	5 35
Sleigh shoe steel	5 30
Tire steel	5 50
Toe calk steel	6 20
Spring steel	6 00
Harrow tooth steel	5 45
Single reeled machinery steel	6 80
Norway iron	15 00
Mining tool steel, per lb.	0 24½

NOTE—3-16" and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

TORONTO

TORONTO, Oct. 13.—Changes in prices of plumbing and steam-fitting supplies are not many this time. The easing of the primary markets in pig lead has caused a little shading in some lead and zinc products, and solders are a trifle lower in price. Pipe lead and lead traps remain unaffected at present, however.

Cotton waste has a slightly lower basis, partly due to declines in the cotton markets.

Quotations on bar iron and steel and pipe and fittings remain very firm, and prices on enamelled ware radiators, range boilers and on compression work are unchanged. The supply of pipe and of fittings is still away behind the demand and no improvement is observed. Sheets and plates, although still scarce, are a little more plentiful, but stocks of lighter gauges are snapped up as soon as they become available.

Business continues fair though a little falling off is reported, and in some lines there is an apparent "holding off," evidently in expectation of declines in prices.

Stocks generally are very much below the average and many basic lines are still very hard to get.

Enamelled Ware Holds Firm; Unchanged

Toronto.

ENAMELLED WARE.—The demand for baths, sinks and lavatories is keeping up particularly well, though a certain falling off is noticed in some lines. Prices though unchanged continue firm and quotations on standard lines are given below:

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide	$40 75
Bath tubs, 5½ ft.	45 30
Lavatories—	
17x10" Apron F139 or P4045	12 25
18x24" Apron F154 or P3845 or P3847	18 70
18x21" Apron F169 or P4205	14 00
18x21" Roll Rim F197, F199 or P4655-6	12 20
17x19" Roll Rim, F241 or P4345	9 95
Sinks, roll rim, 18x30 in.	18 25

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 95	$6 00	$5 85
18 x 30	6 85	7 15	6 70
20 x 30	7 80	7 75	7 70

Closet Bowl Prices Are Maintained

Toronto.

CLOSET BOWLS.—Prices on bowls and combinations remain steady. The sales of these goods continue fair. Quotations on standard lines are as follows:

Closet, standard outfit	$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00

Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00
Do., wood strip seat and cover	3.75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Iron and Steel Firm and Improving

Toronto.

IRON AND STEEL.—There is said to be a little improvement in deliveries of iron and steel and supplies are coming around better than they have for some time past. The fact that the mills in the East have resumed operations after the strikes is also helping to relieve the situation. The transportation question too is believed to be in better shape and cars seem more available with shipments not taking so long in delivery as they have been doing. There is an apparent slackening of demand but stocks are very much below normal in most cases. Quotations are holding firm and are as follows:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	$ 6 25
Common bar steel, ¼-in. and heavier	5 75
Common bar iron, 3-16 in. and lighter	6 25
Common bar iron, ¼ in. and heavier	5 75
Angle base	5 85
Horseshoe iron	6 00
Tire steel	5 95
Band steel	6 25
Spring steel	12 75
Mining drill steel	31 95
Sheet cast steel	....
Sleigh shoe steel	6 00
Norway iron	16 25
Toe caulk iron	6 70
Hoop steel	7 50

Sheets and Plates; Deliveries Better

Toronto.

SHEETS AND PLATES.—The demand for black and galvanized sheets appears to be slackening although there are sufficient back orders on hand to make up for any curtailment of present orders. The opinion in the trade is that there is but little likelihood of prices changing for the present though buyers appear to be holding back expecting a decline. The lighter gauges of sheets are especially scarce and hard to obtain. Prices are largely nominal and quotations are as under:

BLACK SHEETS

14 gauge	10 15
16 gauge	10 25
18-20 gauge	10 70
22-24 gauge	10 75
26 gauge	10 80
28 gauge	10 50
3-16 inch plate	7 00
¼-in. boiler plate	6 50

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Parmier.	Apollo.
10¾ oz.	12 50	13 25
U.S. 28	12 70	12 85
U.S. 26	12 40	12 55
22 and 24	12 25	12 40
18 and 20	11 95	12 10
16	11 95	12 10
12 and 14	11 20	11 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Pipe Supplies Slow; Show no Improvement

Toronto.

PIPE.—The demand continues good for pipe, but jobbers and dealers are unable to meet it. The smaller sizes especially seem very short and ½ inch and ¾ inch, the two sizes most often called for in the plumbing trade, are particularly short. The mills report the same difficulty in getting skelp, with the car shortage another factor in the sitation. The outlook appears to be firm as regards prices and it is pointed out that owing to the prolonged shortage stocks are so low that it will be a considerable time, even when supplies improve, before the demand is satisfied. Prices are unchanged, as per list No. 46 which follows:

Standard Buttweld Pipe
List No. 46
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	23.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.75	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2.66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4.39	4.39	5.21

Pipe Fittings Still Scarce But Prices Unchanged

Toronto.

PIPE FITINGS.—Very little improvement has taken place in deliveries of pipe fittings, and there is still a big shortage in these articles, particularly in malleable fittings. There is a very active demand and with stocks in poor shape this is likely to continue for some time. Prices are unchanged and quotations are as under:

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅜-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	8%
Do., 2½-in. and larger	Plus 5%
Nipples, up to 4-in.	50%
Do., 4½-in. and larger	40%
Do., running thread, 4-in. and under	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Fair Demand; Unchanged Prices For Range Boilers

Toronto.

RANGE BOILERS.—No changes have taken place in prices of range boilers and demand continues to be very fair. Stocks are in medium shape and material for the heavier boilers is now more available.

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Compression Goods and Valves Hold Firm

Toronto.

COMPRESSION GOODS AND VALVES.—A good demand for these goods is noticed. Stocks are said to be in fair shape and prices though firm are unchanged. Quotations on principal lines are as follows:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

No Further Change in Radiators and Boilers

Toronto.

RADIATORS AND BOILERS.—A change in discounts was reported in our last issue. There has been no further change and discounts on hot water radiators are 34 per cent at present, with 35 per cent off list for steam. Prices are expected to be maintained. Stocks are said to be small, with difficulty in obtaining sufficient supplies of material for making same. Lists are as below:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

Soil Pipe and Fittings Quieter and Unchanged

Toronto.

SOIL PIPE AND FITTINGS.—Business in these goods is reported a little quieter, with stocks in a rather better condition. At the present there seems to be no indication of any downward trend in prices, though buyers are said to be "holding off."

Quotations are as follows:

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, add 10% to list.
4-inch, net list.
8 inch, add 20% to list.

FITTINGS—
2 to 6 inch fittings, 20% discount.

Primary Markets Easier on Lead and Zinc

Toronto.

LEAD AND ZINC PRODUCTS.—Easier tendencies are noted in primary markets in pig lead, but lead pipe, traps and bends, etc., remain unchanged. Some lines of solder are easier with slightly lower quotations. Trade is reported to be dull. Prices are the following:

Lead pipe, list, per lb.	0 17
Lead waste pipe, list, per lb.	0 18
Do., over 8 in., list, per lb.	0 19
Lead pipe is subject to discount of 10%	
Lead traps and bends	add 30%
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 12¼
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 41
Solder, strictly, lb.	0 35 0 36
Solder, commercial, lb.	0 31 0 33
Solder, guaranteed, lb.	0 37
Solder, wiping, lb.	0 30½
Zinc sheets, per lb.	0 19

Corrugated Sheets Scarce, Especially Light Gauges

Toronto.

CORRUGATED SHEETS.—No change is reported in corrugated sheets, and while there is a slight improvement in some gauges the lighter sheets are still very difficult to get. Prices are as follows:

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	12 00
No. 26 gauge	12 75
No. 24 gauge	18 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75
Less 7½%.	

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Easing Conditions in Cotton Waste

Toronto.

COTTON WASTE.—An easier tendency seems to be expected in cotton products, and though a slight shading has taken place in some lines of cotton waste prices are still holding fairly firm with no indication of a decline of any size, and with the demand continuing good dealers say any possible change will be gradual. Quotations are the following:

WASTE	
Cream, Polishing	0 26
WHITE	
XXX	0 23
XX	0 21½
X	0 20
Japanese	0 17
XX, grad.	0 22½
XLCR	0 20
X Empire	0 18½
X Press	0 16½
XC	0 18½
COLORED	
No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0 10

Above lines subject to trade discount for quantity.

Conductor Pipe and Eavestroughing Steady

Toronto.

CONDUCTOR PIPE AND EAVESTROUGH.—Stocks of conductor pipe and eavestroughing are still very low, and no improvement can be expected until galvanized sheets become more available. Quotations are unchanged as follows:

PIPE (Conductor)

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in.	$6 90	15-in.	$12 50
10-in.	7 70	18-in.	16 00
12-in.	9 10		

Add 25% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Conductor Elbows Scarce But Unchanged

Toronto.

CONDUCTOR ELBOWS.—No change in price has taken place on these and there is still a scarcity of these goods. Quotations are as under:

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Lower Quotations on Rope Now

Toronto.

ROPE.—Since the last issue of Sanitary Engineer there has been a change in the prices of all rope, and new quotations are the following:

Pure Manila, basis	0 33½
Beaver Manila, base	0 26
New Zealand hemp, base	0 26
Sisal, base	0 21½
Single lath yarn	0 21½
Double Lath Yarn	0 22

Linseed Oil Declines; Lead Is Firm

Toronto.

OIL AND LEAD.—Further reductions have taken place in linseed oil and it is being quoted at $1.55 per gallon for raw and $1.58 for boiled, in barrel lots, with 15 cents added for smaller quantities. White lead in oil is unchanged at base of $20.80 per 100 lbs. for pure and genuine red lead dry at 15½ to 17 cents per lb.

Waste Materials Market Unsettled and Dull

Toronto.

WASTE MATERIALS.—The market in waste materials is reported to be "precarious" at the present time. Quotations are largely nominal and the demand for some metals just now is such that dealers are not eager for these particular lines. Copper and lead are softening, but heavy steel is firming. Trading has been quiet. Quotations are as follows:

WASTE MATERIAL	
No. 2 busheling	$13 00
Stove plate, per ton	32 00
Yellow brass	0 10
Red brass	0 15¾
No. 1 machinery cast	33 00
Heavy melting steel	18 00
Heavy copper	0 16
Scrap zinc	0 06
Light brass	0 08
Wrought iron, No. 1, per gr. ton	15 00
Heavy lead pipe	0 06
Old rubbers, boots and shoes	0 06
Overseas lumbermen's rubber boots	0 04
Bicycle tires	0 01½
Automobile tires	0 02½
Heavy lead pipe	0 05¾
Tea lead	0 03

Ingot Metals Are Dull Generally

Toronto.

INGOT METALS.—The ingot metal market is reported as reactionary with general dullness and very little trading. There is a "hold-off" attitude towards most metals and spelter is the only one showing activity.

TIN.—This metal is said to be very dull with prices easing. It is very weak on English markets where the decline still continues. Present quotations locally are from 50 to 53 cents.

LEAD.—Easier tendencies are continued in lead markets, though prices are yet higher than they were this time last year. It is being quoted at 9 cents per lb.

COPPER.—The copper market is reported unsettled with very little buying, in fact dead is the term being used. Because of the dullness the output is being curtailed and the production for September is estimated at ten million pounds less than the previous month. Quotations for casting copper are unchanged at 24 cents.

SPELTER.—This has been the most active of the ingot metals and it is slightly lower. Present quotations are 10 cents per lb.

ANTIMONY.—Very little demand is noted for this metal and market is dull. Quotations are from 10 to 14 cents, according to grade.

ALUMINUM.—No new feature is recorded in aluminum, which remains inactive. Prices are unchanged from 37 to 39 cents.

WINNIPEG

WINNIPEG, Oct. 13.—Very few price changes have been recorded since the last issue of Sanitary Engineer among plumbing and steamfitting supplies.

The discount has been altered on steam and hot water radiators and hot water and steam boilers which are advanced in price.

Wrought iron pipe has also had a revision of prices, which are higher, due to the higher freight rates.

There is no improvement regarding pipe fittings and there is still a great shortage. The demand for all classes of plumbing goods is greater than the supply, and many orders are turned down for galvanized goods, Canada plate, pipe and fittings. There is a good demand for plumbers' oakum and cotton waste and both are firm and unchanged.

Enamelled ware is steady but quieter, galvanized sheets still hold high and are very scarce.

Canada Plate in Big Demand; Still Scarce

Winnipeg.

CANADA PLATE.—The trade need not expect any improvement in the situation as regards the supply of this line as the importers continually report that they will have little or nothing to offer the way of supplies this fall. At the present time there is a growing demand for stove pipes and this will certainly increase as the colder weather approaches. Prices are nominal under the decided scarcity.

Pipe Prices Up 10%; Supplies Still Scarce

Winnipeg.

PIPE, BLACK AND GALVANIZED.—Prices have been revised on wrought iron pipe both black and galvanized since last issue of Sanitary Engineer and are approximately 10 per cent. higher, due to the higher freight rates. Supplies of this commodity continue very scarce and the demand exceeds the supply and no improvement is noticed in deliveries. The mills are still very much behind with orders and report difficulty in obtaining sufficient skelp. Quotations are as follows:

Date Effective Sept. 29, 1920.

Size ins.	Winnipeg.	Calgary, Edmonton, Lethbridge & Medicine Hat Add to Winnipeg price.	Saskatoon Add to Winnipeg price.	Regina Add to Winnipeg price.	Brandon Add to Winnipeg price.
⅛ in. ..	$6 21	$0 30	$0 20	$0 17	$0 11
¼ in. ..	5 94	0 53	0 34	0 30	0 19
⅜ in. ..	6 12	0 70	0 45	0 40	0 26
½ in. ..	8 24	1 05	0 67	0 59	0 38
¾ in. ..	10 22	1 40	0 90	0 79	0 51
1 in. ..	15 08	2 08	1 34	1 17	0 75
1¼ in. ..	20 43	2 80	1 80	1 57	1 00
1½ in. ..	24 48	3 35	2 15	1 88	1 21
2 in. ..	32 94	4 50	2 88	2 52	1 62
2½ in. ..	53 33	7 18	4 60	4 02	2 68
3 in. ..	70 07	9 42	6 03	5 28	3 39
3½ in. ..	88 20	11 25	7 20	6 30	4 05
4 in. ..	104 40	12 33	8 53	7 46	4 80
4½ in. ..	124 20	15 61	10 04	8 75	5 62
5 in. ..	144 90	18 12	11 60	10 15	6 52
6 in. ..	188 10	23 45	15 00	13 14	8 44
7 in. ..	274 50	29 09	18 62	16 28	10 46
8L	288 90	31 25	20 00	17 50	11 25
9	397 80	42 20	26 96	23 59	15 16
10L in. ..	369 00	40 00	25 60	22 40	14 40

Galvanized Pipe

Size ins.					
⅛ in. ..	$8 69	$0 30	$0 20	$0 17	$0 11
¼ in. ..	8 28	0 53	0 34	0 30	0 19
⅜ in. ..	8 46	0 70	0 45	0 40	0 26
½ in. ..	9 95	1 05	0 67	0 59	0 38
¾ in. ..	12 51	1 40	0 90	0 79	0 51
1 in. ..	18 50	2 08	1 34	1 17	0 75
1¼ in. ..	25 02	2 80	1 80	1 57	1 00
1½ in. ..	29 93	3 35	2 15	1 88	1 21
2 in. ..	40 28	4 50	2 88	2 52	1 62
2½ in. ..	65 39	7 18	4 60	4 02	2 68
3 in. ..	86 40	9 42	6 03	5 28	3 39
3½ in. ..	107 10	11 25	7 20	6 30	4 05
4 in. ..	126 90	12 33	8 53	7 46	4 80
4½ in. ..	152 10	15 61	10 04	8 75	5 62
5 in. ..	177 30	18 12	11 60	10 15	6 52
6 in. ..	229 50	23 45	15 00	13 14	8 44
7 in. ..	.....	29 09	18 62	16 28	10 46
8 in. ..	.....	31 25	20 00	17 50	11 25

Light Gauge Sheets Very Scarce

Winnipeg.

SHEETS, BLACK & GALVANIZED.—There is still a very great shortage of black and galvanized sheets in the lighter weights and there is very little to be had in the heavier weights. The lighter gauges are absorbed as quickly as they appear on the market. Prices are firm and are for the most part nominal. Quotations are given below:

Black Sheets		Galvanized Sheets	
14 gauge	$10 00	16 gauge	$12 35
16 gauge	10 35	18 gauge	12 50
18 gauge	10 40	20 gauge	12 50
20 gauge	10 40	22 gauge	12 65
22 gauge	10 45	24 gauge	12 65
24 gauge	10 45	26 gauge	12 80
26 gauge	10 50	28 gauge	13 40
28 gauge	10 50	10¾ oz.	13 80

Radiators and Boilers Advanced About 10%

Winnipeg.

RADIATORS AND BOILERS.—An advance of approximately 10 per cent. has been made in hot water and steam radiators and boilers. This advance has been expected for some time in trade circles and is due to the increase in the price of pig iron, freight rates and higher labor charges. The market is very strong and the demand has been good for the past few weeks.

Plumbers' Oakum; Fair Demand; Unchanged

Winnipeg.

PLUMBERS' OAKUM.—No change is recorded for the past two weeks in plumbers' oakum. The demand continues good and the price still remains at $7.75 per bale.

Eavestrough, Conductor Pipe Still Scarce

Winnipeg.

EAVESTROUGH AND CONDUCTOR PIPE.—As long as there is a scarcity of sheets there is no chance for improvement in the eavestrough and conductor pipe market. What the future will be depends solely upon the trend of markets on sheets. There is at this season of the year a fair demand for popular sizes.

Building Outlook Will Improve

WHILE there is that feeling of hesitancy regarding the beginning of big contracts on buildings, due to the labor as well as the material situation, Sanitary Engineer understands that work will be started this fall on some buildings that have been planned, and some of which will cost a great deal of money. The possibility of materials being obtainable for less money some months hence is doubtless holding back certain work indefinitely, but there are other plans, calling for the erection of much-needed buildings, that will perhaps be proceeded with. In Montreal, for instance, a new hotel of 1,000 rooms will be erected within the next year, if plans now developing are carried out, and it may be that the work will be started soon and continue during the winter months. Meanwhile, the various considerations of material delivery and probable labor conditions have a bearing on work so extensive as this will be, and it takes time to work out details. Doubtless, when such work takes definite shape the immediate effect will be a desirable one and other building activity will be resumed.

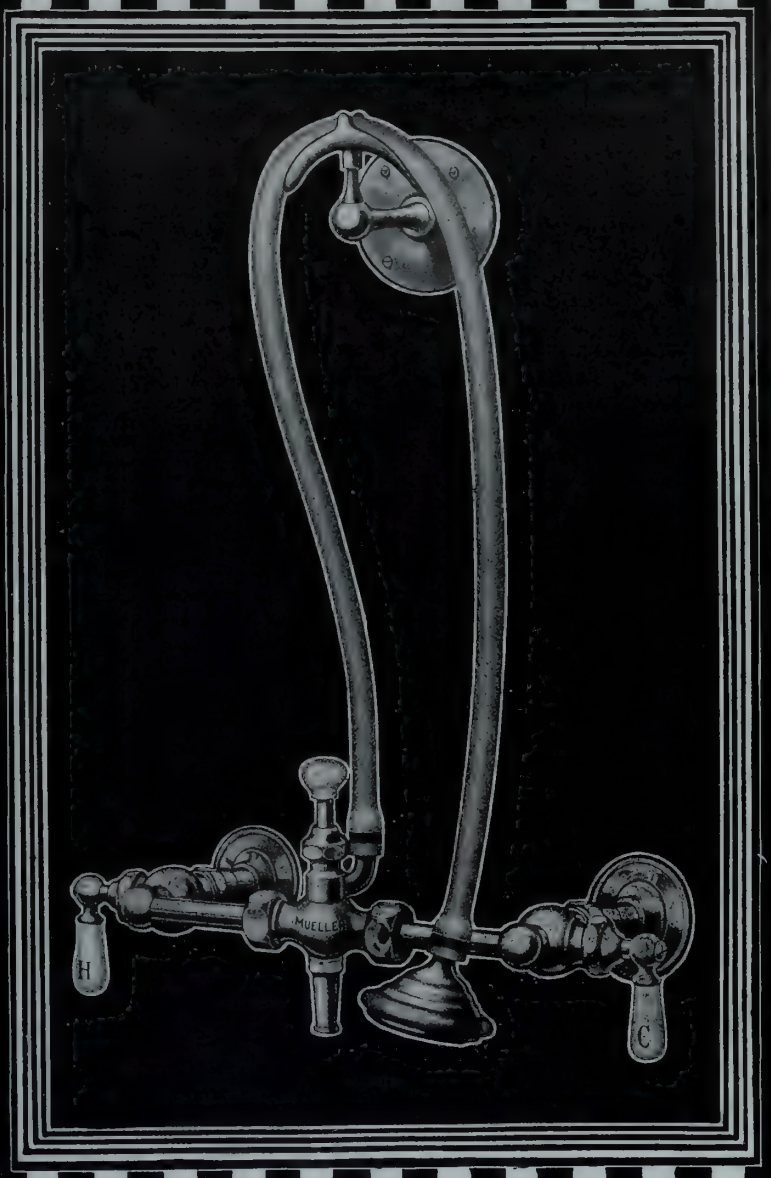
What Cement Head Says

One of the basic building materials, Portland cement, has been manufactured in restricted amounts, due to the limitations imposed through coal shortage. The price of coal, too, according to Frank P. Jones, vice-president of the Canada Cement Company, has worked a hardship, in that much fuel is used in making the product, and the price is about three times what it normally was for years.

But the outlook is brighter, in Mr. Jones' opinion, and there will be a greater demand for the product with the revival of building activity that is ahead. In a recent commentary on the situation he said:

"Demand was not particularly heavy, yet more business was offering than the company was able to handle. It had

(Continued on page 36.)



MUELLER Sink and Lavatory Combination

Of standard Rapidac construction, embodying the celebrated Seven Points of Supremacy, this fixture is one of the most popular MUELLER designs. It delivers hot, cold or tempered water—either in a solid stream from the spout, or in a spray from the flexible nozzle.

A REAL MONEY-MAKER FOR PLUMBERS

Wise plumbers display this popular MUELLER Fixture in their show windows—as an example of the new improvements in plumbing—and with it secure additional business from old and new customers alike.

Write for catalog and prices. Mail orders given prompt attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Ill., U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Pt. Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

Wooden Pipe Coated with Concrete Said to Equal Iron Pipe

Exclusive Inquiry by Chairman of Saskatchewan Water Supply Commission Results in Conclusion that Wood Stave Pipe Coated with Concrete Will Equal Cast Iron Pipe and Be Much Less Expensive.

REGINA, SASK. — According to the conclusion arrived at by A. J. McPherson, chairman of the Saskatchewan Water Supply Commission, after making an exhaustive inquiry as to the best kind of pipe to use in the construction of a pipe line from the South branch of the Saskatchewan River to serve Moose Jaw and Regina and the intervening territory, wood stave pipe will give the best service. Such a line coated with "gunite" concrete would cost $3,800,000.

Major McPherson has made inquiry in many places in the United States and also Canada relative to the various materials used in the construction of pipe lines. He found from this that concrete pipe lines had not proven successful owing to the action of alkali on the concrete. This has been illustrated by the experience of the city of Winnipeg in the pipe line to Shoal Lake where the city secures its water.

In regard to steel pipe lines Major McPherson refers to one which was put down at Medicine Hat and which has given considerable trouble at the lead packed joints.

Relative to the life of cast iron pipe, he states that the life of it is not known, a number of lines being in use for upwards of one hundred years. Tubercules form on the inside from the action of the water and the capacity of the pipe is gradually diminished until in the course of years it will not be more than 60 per cent. of the capacity of a wooden line. The durability of cast iron, however, is unquestioned.

Major McPherson's report goes into the whole question most extensively. He cites the experience of Butte, Mont., with wood stave pipe, and also that of Ogden, Utah. At Seattle a wood pipe line put down in 1900 has all been replaced because of the gravelly soil, which allows the air to get at the pipe and this causes the wood to rot. Engineers at Seattle are of the opinion that wood pipe, if conditions can be created so as to keep it water-soaked, will last as long as steel.

At Calgary in 1902, twelve miles of 30-inch continuous wood stave pipe was laid. In 1914 a thorough inspection was made of it and the only place where the wood was found to be deteriorating was where it had been housed in a box filled with sawdust. The rods were in good shape and no defects had developed in 12 years.

Under the heading "Aqueducts" the Encyclopaedia Britannica has the following memoranda regarding wood pipe lines at Denver, Colorado: "The supply of Denver City, initiated by a Citizens' Water Company in 1889, is derived from the Platte River, rising in the Rocky Mountains. The first aqueduct constructed is rather over 20 miles in length, of which a length of 16 1-2 miles is made of wooden stave pipe, 30 in. diameter. The maximum pressure is that due to 185 feet of water. Within a year of the completion of the first conduit it became evident that another of still greater capacity was required. This was completed in 1893. It is 34 in. diameter and will deliver 16 million gallons daily. By increasing the head upon the first pipe the combined discharge is 30 million gallons a day.

Canada's Exports to United Kingdom Show Decrease—Imports From U. K. Increase

A notable feature of the present position is the resumption of business with Germany, of which, however, imports from the United Kingdom represent two-thirds of the total value, a distinct change from the pre-war situation.

Imports aggregating £12,209,916 from Russia are also worthy of note.

As regards Canada, it will be observed that whereas exports to the Dominion have increased more than threefold, imports from Canada have fallen away by nearly one-third.

United Kingdom's trade with:—	1919	1920
Canada—	£	£
Imports	48,243,296	33,973,656
Exports	6,270,529	21,169,988
Re-exports	514,306	3,628,412
Total	55,028,131	58,772,056

BUILDING OUTLOOK WILL IMPROVE

(Continued from page 34.)

even been necessary for the company to advise curtailment and even suspension of certain roads and undertakings, because of the restrictions placed on the company's output by the limited coal supply.

"The company had been able to operate to probably 40 per cent. capacity but this was only possible by reason of the fortunate circumstance that at the beginning of the season it had about 100,000 tons of coal in stock, and its ability to supply as much cement as it had supplied was in large part due to the fact that it began the season with about one million barrels on hand.

"The price of cement had only been advanced about 70 per cent. By comparison with the advances mentioned above, this would surely be considered modest."

Mr. Jones said the industry had been placed under a great disadvantage owing to the price of coal, which had multiplied many times over.

With greater settlement coming in the labor market and building materials of all kinds showing an inclination to come down, building operations which have long been delayed should begin to come down to a more reasonable basis.

COMBUSTION

(Continued from page 17.)

Rapid oxidation causes the fuel to produce flame. The temperature at which this begins is called the point of ignition.

When coal, or other like substances, is to be burned, the carbon must be heated to the glowing point before the oxygen can combine with it at the speed necessary to cause combustion.

The requirement of raising the temperature of the carbon to the point of incandescence determines the rate of combustion.

The rate of combustion is much higher with light oils and explosives than it is with such fuels as coal, wood, etc.

An increased rate for the combustion of coal is obtained by pulverizing that class of fuel. In ordinary cases the pulverized fuel would lie so packed on the grates that the oxygen necessary for its proper combustion could not come in contact with the carbon. To get over this difficulty the fuel is shot into the combustion chamber where it mixes with the air before striking the grates. An intense heat thus results.

The combustion of coal only takes place on its surface. The inside of the coal may glow; but combustion can only take place on the surface, because it is only on the surface that the oxygen can come in contact with the carbon.

A Full Guarantee of Satisfaction

Morrison Valves

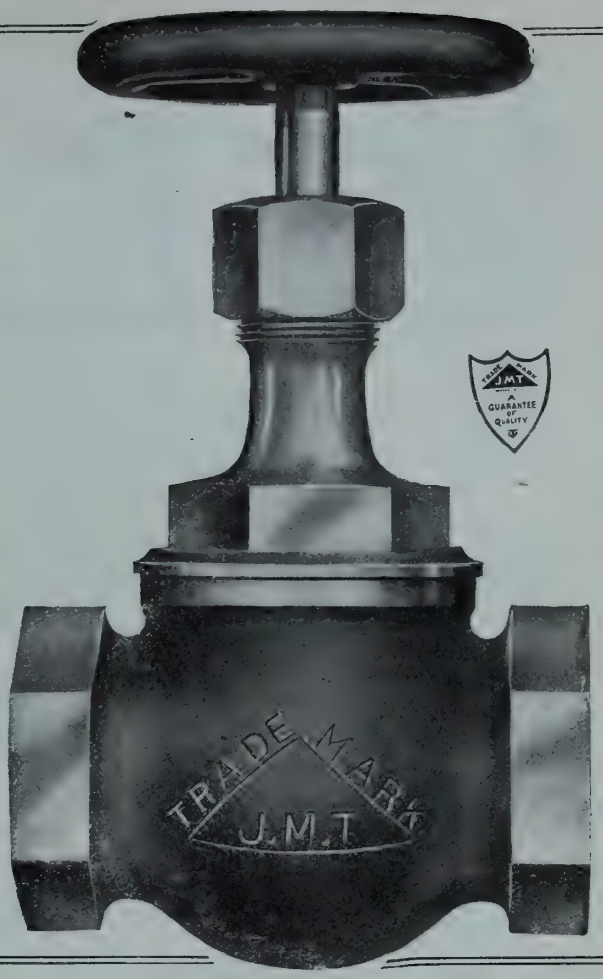
Morrison Valves are specified on nearly all drawings for important contracts.

Your customers know the excellent reputation of Morrison Products and buy them readily.

They have great confidence in the reliability and service of these efficient valves.

Morrison Products are profitable to handle and fully guaranteed.

James Morrison Brass Mfg. Company
LIMITED
93-97 Adelaide Street West - - Toronto



Westco TANKLESS WATER SYSTEM
HAS NO GEARS, NO VALVES, NO BELTS
IS AUTOMATIC AND NOISELESS
WESTCO PUMPS, LIMITED
707 YONGE ST. TORONTO.

Over one hundred thousand people saw the Westco Tankless Water System demonstrated at the Canadian National Exhibition, Toronto.

Large numbers saw it operating at the Western Fair, London. And it has been demonstrated at almost all the rural and county fairs throughout Canada.

The people who saw the Westco Tankless Water System in action are good prospects; many of them, no doubt, live in your territory. We will be glad to have your name on our list of dealers and could give you some prospects to go after.

Westco Pumps, Ltd.
707 Yonge Street,
Toronto, Ont.

A Simple Way to Cut the Cost of Travelling Salesmen

The salesmen who are compelled to fertilize, plow, sow, harrow and cultivate their fields, can not compete with the salesmen who spend the bulk of their time harvesting.

To keep a good salesman on the road to-day, costs more than ever before, and to deprive him of the advantage of Business Paper advertising is equivalent to demanding that he walk from city to city to save car fare. It's a net loss to both the salesman and the employer.

There is a Business Paper in each field of trade and industry which can do the preparatory work of cultivation more quickly, and at less cost than salesmen, thus multiplying the efficiency of the salesmen by permitting them to confine their efforts to harvesting.

There is no guesswork or theory about this—thousands of concerns are daily demonstrating its truth.

Business Paper advertising calls on the real buyers in your field and **your field only.** It is assured of an audience because it is contained in a paper edited wholly in the buyer's interest, which he needs, wants and pays for.

You who have discovered the benefits of specialization in production and in personal selling, need no argument to appreciate the opportunity for Specialized Advertising afforded by Business Papers.

What "A.B.P." Means to Advertisers.

Only papers subscribing to the Associated Business Papers' Standards of Practice are admitted to membership. These standards are unsurpassed in any field and cover every department of publishing in addition to certified circulation.

Maclean Publications All Members

The following is our list of trade and technical publications, all of which are members of the Associated Business Papers:

Weekly—
Hardware and Metal
Canadian Grocer
Financial Post
Druggists' Weekly
Canadian Machinery

Semi-Monthly—
Maclean's Magazine
Farmers' Magazine
Power House
Sanitary Engineer

Monthly—
Dry Goods Review
Men's Wear Review
Bookseller and Stationer
Canadian Foundryman
Marine Engineering
Printer and Publisher
Canadian Motor, Tractor and Implement Trade Journal

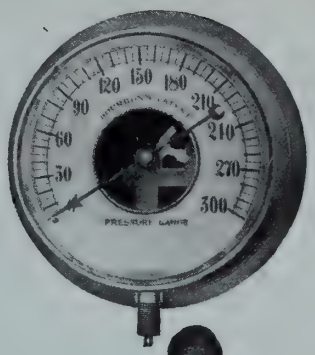
The MacLean Publishing Company, Limited

Toronto Montreal Winnipeg Vancouver London (Eng.)

FIVE WORKS---OVER 3,000 EMPLOYEES

UNITED BRASSFOUNDERS AND ENGINEERS, LIMITED

EMPRESS FOUNDRY, CORNBROOK, MANCHESTER, ENG.



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GUNMETAL and BRASS VALVES and COCKS.
STEAM, WATER and COMPRESSED AIR FITTINGS GENERALLY.
CAST IRON STOP and SLUICE VALVES.
SEMI-ROTARY PUMPS.
EXTRUDED BRASS and BRONZE BARS.
BRASS BOLTS and NUTS, STUDS and GENERAL TURNED WORK FROM THE BAR.
CAST AND MALLEABLE IRON COCKS and PIPE FITTINGS.
PRESSURE and VACUUM GAUGES.
INJECTORS and GENERAL JET APPLIANCES.
ENGINE GOVERNORS (Pickering, Proell, and Other Types).
SPRAYING MACHINES, for Insecticides and Lime-washing.
COPPERSMITHS' WORK.
"STELLA" BRAND ALLOYS: MANGANESE COPPER, SILICON COPPER, FERRO ZINC, PHOSPHOR COPPER and TIN, etc.

"UBEL" SERVICE

If you are interested in any or all of the lines mentioned, and are in a position to take a hand in the energetic distribution of the same, please communicate with us NOW to our Head Office, at above address.

Representatives for Canada (East of Alberta)
W. H. CUNNINGHAM & CO., 183 Church St., Toronto.
For British Columbia and Alberta
W. MASON ROOKE, M.I.M.E., 613 Dominion Bldg., Vancouver, B.C.

HOYT

WIPING SOLDER

Lead Traps and Bends Sheet Lead and Calking Lead

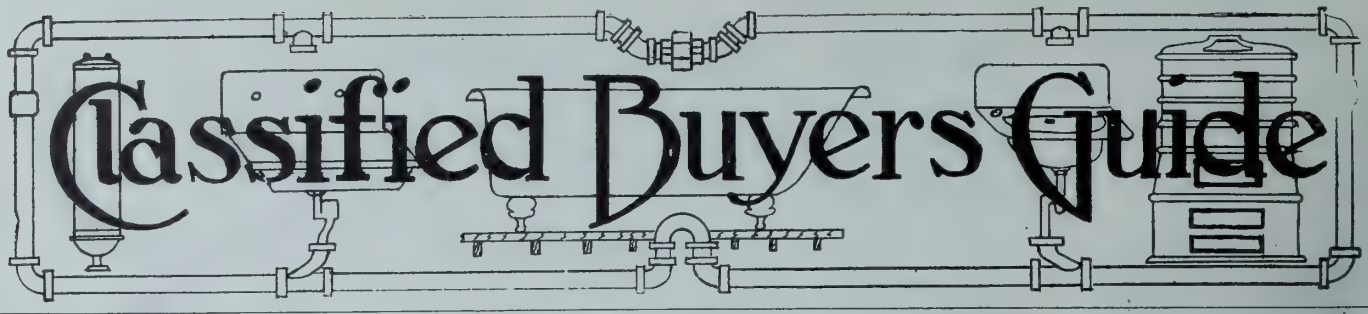
HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG

Extending the Uses of Your Product by Informing Dealers

When the efficient, modern advertiser finds his reputation firmly established, the confidence of the trade firmly held, distribution ideal and his product and trade-mark thoroughly familiar, he directs the full force of his continuous advertising toward increasing the uses of his product by showing the dealer and his salesmen each week new uses for his goods that both stimulate sales and increase the consumer satisfaction with the product.

A message to the whole plumbing trade of Canada through Sanitary Engineer is productive, profitable and reliable "business insurance" for the future.



AIR CONDITIONING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR RECEIVERS
Wm. B. Scaife & Sons Co., Oakmont, Pa.

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

AIR PRESSURE TANKS
The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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The Northwestern Chemical Co., Marietta, Ohio

CLAMPS "C"
J. H. Williams & Co., Brooklyn, N.Y.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CONDENSATION UNITS
The Westco Pumps Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS
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Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

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Warden King, Ltd., Montreal.

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Beaton & Corbin Mfg. Co., Southington, Conn.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Wolverine Ltd., Toronto, Ont.

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Beaton & Cadwell Mfg. Co., New Britain, Conn.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

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Empire Mfg. Co., Ltd., London and Toronto.

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Empire Mfg. Co., Ltd., London and Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

GRATES FOR RANGES, FURNACES AND BOILERS
McIntyre & Taylor, Toronto.

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Galt Brass Co., Galt, Ont.
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C. A. Dunham Co., Ltd., Toronto.

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The Hotstream Heater Co., Cleveland, Ohio.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.

HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

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B. F. Sturtevant Co., Hyde Park, Boston, Mass.

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J. H. Williams & Co., Brooklyn, N.Y.

HOT WATER COILS, DOMESTIC
McIntyre & Taylor, Toronto.

HUMIDIFIERS
B. F. Sturtevant & Co., Hyde Park, Mass.

LAUNDRY TUBS
The Canada Metal Co., Ltd., Toronto.

LEAD
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hoyt Metal Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

MACHINISTS' TOOLS
J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS
Gurney Foundry Co., Limited, Toronto.
Fittings Limited, Oshawa.

MIXING VALVES
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope

MONKEY WRENCHES
Trimont Mfg. Co., Roxbury, Mass.

PACKING
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

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Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

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Beaton & Cadwell Mfg. Co., New Britain, Conn
Beaton & Corbin Mfg. Co., Southington, Conn
Fittings Limited, Oshawa.

PIPE, BLACK AND GALVANIZED
Canadian Tube & Iron Co., Ltd., Montreal.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Borden Canadian Co., Ltd., Toronto.
Chamberlain Desolvo Co., Ltd., Toronto.
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Trimont Mfg. Co., Roxbury, Mass.
Wolverine Ltd., Toronto, Ont.

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Canadian Wolverine Co., Ltd., Chatham.
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Greenfield Tap & Die Corporation, Greenfield, Mass.
John Hall & Sons, Ltd., Brantford.
A. B. Jardine & Co., Hespeler.

PIPE WRENCHES
Borden Canadian Co., Toronto.
Trimont Mfg. Co., Roxbury, Mass.
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The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.
Wm. B. Scaife & Sons Co., Oakmount, Pa.

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Canada Metal Co., Ltd., Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
R. MacDougall & Co., Ltd., Galt.
Porcelain Products, Limited, 34 Adelaide St. West, Toronto.

PUMPS
The Westco Pumps Limited, Toronto.

PUMPING SYSTEMS, AUTOMATIC
The Westco Pumps Limited, Toronto.

RADIATOR FOOT RESTS
Beaton & Cadwell Mfg. Co., New Britain, Conn.

RADIATORS
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation Ltd., Toronto.
Warden King Ltd., Montreal.

RADIATOR TRAPS (STEAM)
C. A. Dunham Co., Ltd., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

RANGE BOILERS
The Canadian John Wood Mfg. Co., Toronto.
Toronto Hardware Mfg. Co., Toronto.

REDUCING PRESSURE VALVES
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

ROOF FLANGES AND FLASHINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.

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Anthes Foundry Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

SOCKETS, WIRE ROPE
J. H. Williams & Co., Montreal, Que.

SOLDER
Canada Metal Co., Ltd., Toronto.
Hoyt Metal Co., Toronto.

STEAM SPECIALTIES
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
Kerr Engine Co., Walkerville, Ont.
James Morrison Brass Mfg. Co., Toronto.

STEAM TRAPS
C. A. Dunham Co., Ltd., Toronto.

STOVES
Gurney Foundry Co., Limited, Toronto.

STOVES, GAS AND COAL
Gurney Foundry Co., Ltd., Toronto.

SMOKE TEST MACHINES
James Morrison Brass Mfg. Co., Toronto.

SWIVELS, HOOK
J. H. Williams & Co., Brooklyn, N.Y.

TANKS, STEEL
The Canadian John Wood Mfg. Co., Toronto.

TESTING PLUGS
James Morrison Brass Mfg. Co., Toronto.

THUMB SCREWS AND NUTS
J. H. Williams & Co., Brooklyn, N.Y.

TOOLS
Wolverine Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont
Trimont Mfg. Co., Roxbury, Mass.
J. H. Williams & Co., Brooklyn, N.Y.

UNIONS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

VAPOR HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

J. H. Williams & Co., Brooklyn, N.Y.
J. H. Williams & Co., Brookly, N.Y.

VITRO TANKS
Galt Brass Co., Ltd., Galt.

VACUUM SYSTEMS OF HEATING
C. A. Dunham Co., Ltd., Toronto.

VALVES
Empire Mfg. Co., London and Toronto.
R. MacDougall & Co., Ltd., Galt.
James Morrison Brass Mg. Co., Ltd., Toronto.
Jenkins Bros., Ltd., Montreal, Que.
The Kerr Engine Co., Ltd., Walkerville, Ont.

WATER SUPPLY SYSTEMS
The Burnett-Larsh Mfg. Co., Dayton, Ohio.
Empire Mfg. Co., London and Toronto.
The Westco Pumps Limited, Toronto.

WASHING MACHINES
Gurney Foundry Co., Ltd., Toronto.

WRENCHES, SET, DROP FORGED, ENGINEERS, SOCKET AND CHAIN PIPE
J. H. Williams & Co., Brooklyn, N.Y.

How to Test Advertising

THE man who doubts the power of advertising belongs in the same class with the man who refuses to believe that the world is round simply because he can't get off somewhere at a distance and see its roundness for himself.

The merchant who fears to attempt advertising because he figures it as an "expense" is blind to his own interests. I personally know several men who, because they once tried advertising to the extent of a cheaply printed hand-bill and didn't find it necessary next morning to call on the police to keep the crowds of eager buyers from swamping their store, loudly and solemnly aver that "advertising doesn't pay."

Advertising *does* pay.

The most successful merchants are the merchants who believe most thoroughly in advertising and who practice their belief.

But advertising, in order to pay, has got to be *intelligent* advertising.

The day of hashed-over superlatives — "best goods," "lowest prices," "best stock in town," "greatest bargains ever heard of," and so on—has passed.

People have learned to distinguish the *truthful* advertiser from the blatant behind-the-times storekeeper who believes that, so long as *he* claims to have the best goods on earth, or under the earth, or within wireless distance of the earth, people will break their necks trying to get to his counters in the forefront of the crowd.

Put some *brains* into your advertising.

Don't let the office boy write your announcements in between his other duties.

Don't doubt the business-getting and business-building power of intelligent and informative publicity — and you will find that advertising *does* pay.

—Jerome P. Fleishman.

KERR VALVES

possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.

They insure the best of service, and stamp any job on which they are used as well equipped.

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Valve Manufacturers

WALKERVILLE, ONTARIO

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The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

Canadian Tube & Iron Co. Limited

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Toronto Hardware Manufacturing Co., Limited

Recommend Riveted Range Boilers, the kind that stands the test of time, not the flashy kind that appears good for the first year or two and then gives out.

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OPEN VIEW
NO. 10-A

The CEILING PLATE that's better

TOP VIEW
NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾" WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

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Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

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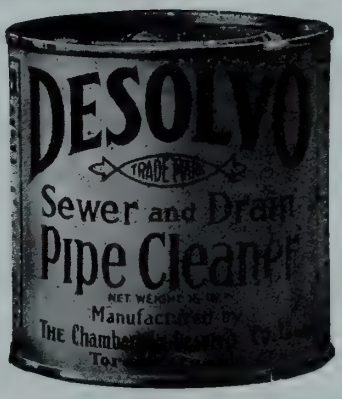

Sales Will Grow

Desolvo, the handy cleaner for clogged drains and frozen pipes, sells with little effort on your part. It mixes with cold water and generates heat itself to thaw frozen pipes. Display it on your counter, and the sales will grow.

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Modern business methods demand efficiency. Guessing at costs is out of date and inefficient. A dollar in your pocket is worth two in the other man's pocket. Try Allpriser.

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Allpriser Service is only $25.00 annually.

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Iron Pipe Joint Cement

SETS LIKE GUM
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Guaranteed to Repair Leaks in Boilers and Heating Systems
Qts.-$4.00 Gal. $14.00
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When writing advertisers please mention that you saw their advertisement in the SANITARY ENGINEER

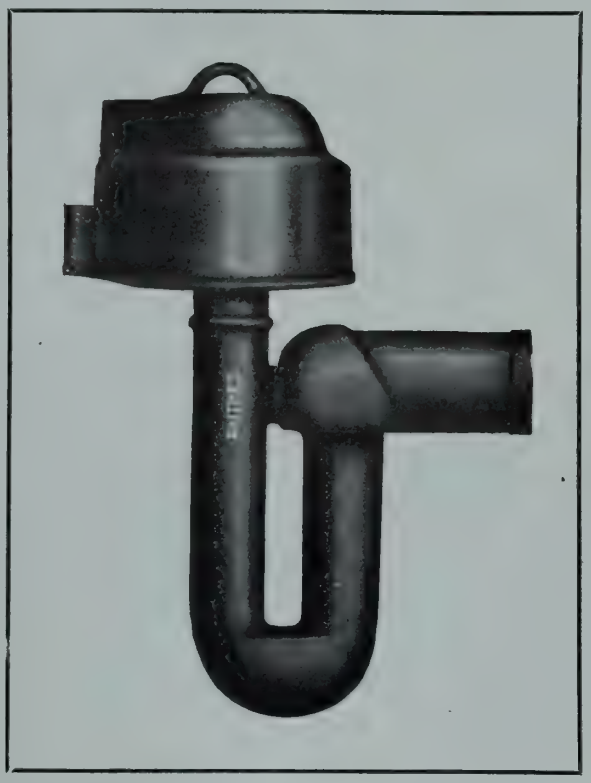
THE PAWNS COUNT

The accompanying sketch illustrates

THE "ANTHES" SYPHON—

a pawn in the game of securing ***lower food prices.***

Induce the farmer to improve the sanitary conditions of his home. Life on the farm will thereby be rendered more congenial and attractive and the difficulty the farmer experiences in retaining adequate help will be considerably reduced—Result: —. Increased agricultural production, and consequently, lower food prices.



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ANTHES FOUNDRY LIMITED

MANUFACTURERS

CAST IRON SOIL PIPE AND FITTINGS

JEFFERSON AVE.
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The Name VITRO Has Made Thousands of Dollars for the Plumbers of Canada

VITRO is more than the name of the composition from which the VitrO Tank is made.

VitrO is a complete tank—tank and fittings—both mighty high-class as every plumber knows.

VitrO is the name that the public uses when it means—"a high-class tank."

VitrO is the name that hundreds of thousands of people know means "no trouble" in the bathroom.

VitrO is the name that has meant a square deal to plumbers from the minute the first VitrO tank went on the market.

VitrO, because of its high quality, has built up a big, profitable business for plumbers.

More, because the tank itself and the fittings were both tested to give "no trouble," plumbers have been saved the expense of going back to the job to make minor repairs, so that the profit on a VitrO Tank job is a clear profit.

VitrO Tanks fitted with VitrO Fittings are produced exclusively in Canada by

THE GALT BRASS CO., LIMITED
GALT, CANADA

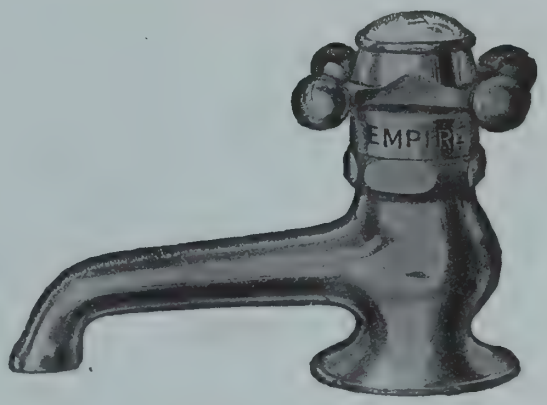
VITRO
NO TROUBLE
TANKS

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, NOVEMBER 1, 1920 No. 21

EMPIRE
COMPRESSION
Basin Cock



CATALOGUE No. A-440

The finish and design of this basin cock is most pleasing and, since it bears the name EMPIRE, you know it has ***quality*** throughout and that you can recommend it for use anywhere.

We handle a complete line of sanitary fixtures and plumbing supplies. Write us your needs.

"If it's an Empire Product you know it's right"

EMPIRE BRASS MANUFACTURING CO., LTD.

LONDON and TORONTO, CANADA

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

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MANITOBA and NORTHWEST:
E. B. Plewes, 120 Lombard St., Winnipeg

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TINKER TOM'S TALKS.

Talk No. 283

Place your orders soon for November, December, 1920, and first quarter 1921 deliveries.

MADE IN PREMIER CANADA and TONCAN METAL

GALVANIZED SHEETS

Your jobber is in position to take care of your needs promptly and at the right price.

Tinker Tom

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Mr. John S. Clemens

A Little "Straight Talk" to the Canadian Plumbing Trade

Introducing the above as Manager of our Toronto Branch, effective November 1st, succeeding Mr. Trevor Hawgood, resigned.

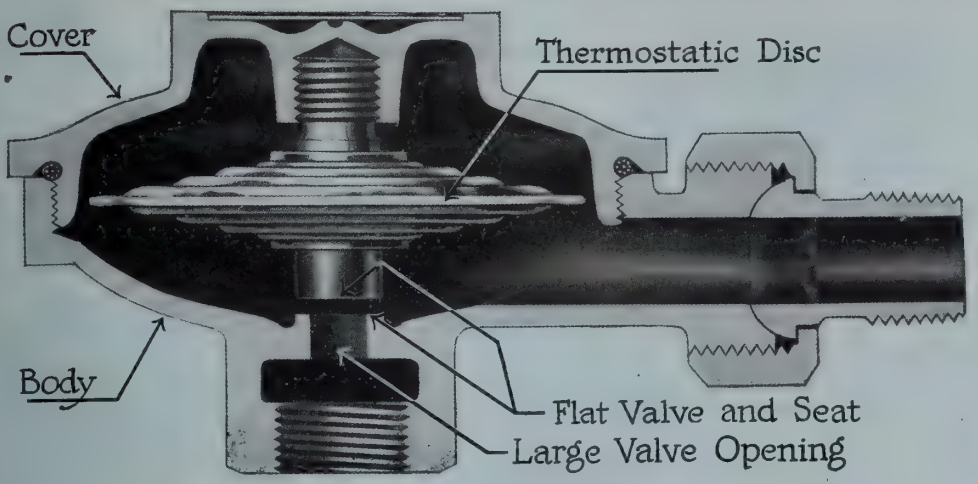
Mr. Clemens is not altogether a stranger to the Toronto Sanitary Engineers, having spent some weeks, about a year ago, amongst the Plumbing trade in the east end, while for the past three years he has covered Eastern and Northern Ontario and the larger centres in Quebec; prior to that, he was seven years in our Galt plant in the factory and shipping dept., so that we have no hesitancy in saying that the Toronto Trade will find Mr. Clemens brim full of knowledge respecting our lines. This, coupled with honesty, courtesy and love of hard work (his characteristics), bespeak satisfaction to the trade, a large volume of business for the house, and encouragement for him.

We also take this opportunity of thanking those in his recent territory for their many considerations, and to announce that we will shortly appoint his successor.

Yours for efficiency and service,

CANADIAN BRASS COMPANY
LIMITED

GALT **TORONTO**



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Made in Canada

SAVING B. T. U'S

Lets the air and water out; keeps the steam in. This is our claim—and the fact. With every coil hot, no air and water to stop circulation, and each radiator simmering around 100% efficiency, it is not surprising that Dunham Radiator Traps are helping make new records for fuel saving. Complete details should prove very interesting to you.

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Packless Radiator Valves
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Blast Traps
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Damper Regulators

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The DUNHAM HEATING SERVICE

Gurney

We are prepared to ship PROMPTLY from stock from TORONTO or any of our branch houses

BOILERS AND RADIATORS

As follows:

ROUND HOT WATER BOILERS, *All Sizes*
SQUARE BOILERS, Hot Water and Steam, *All Sizes*
RADIATORS, Hot Water, *All Sizes*

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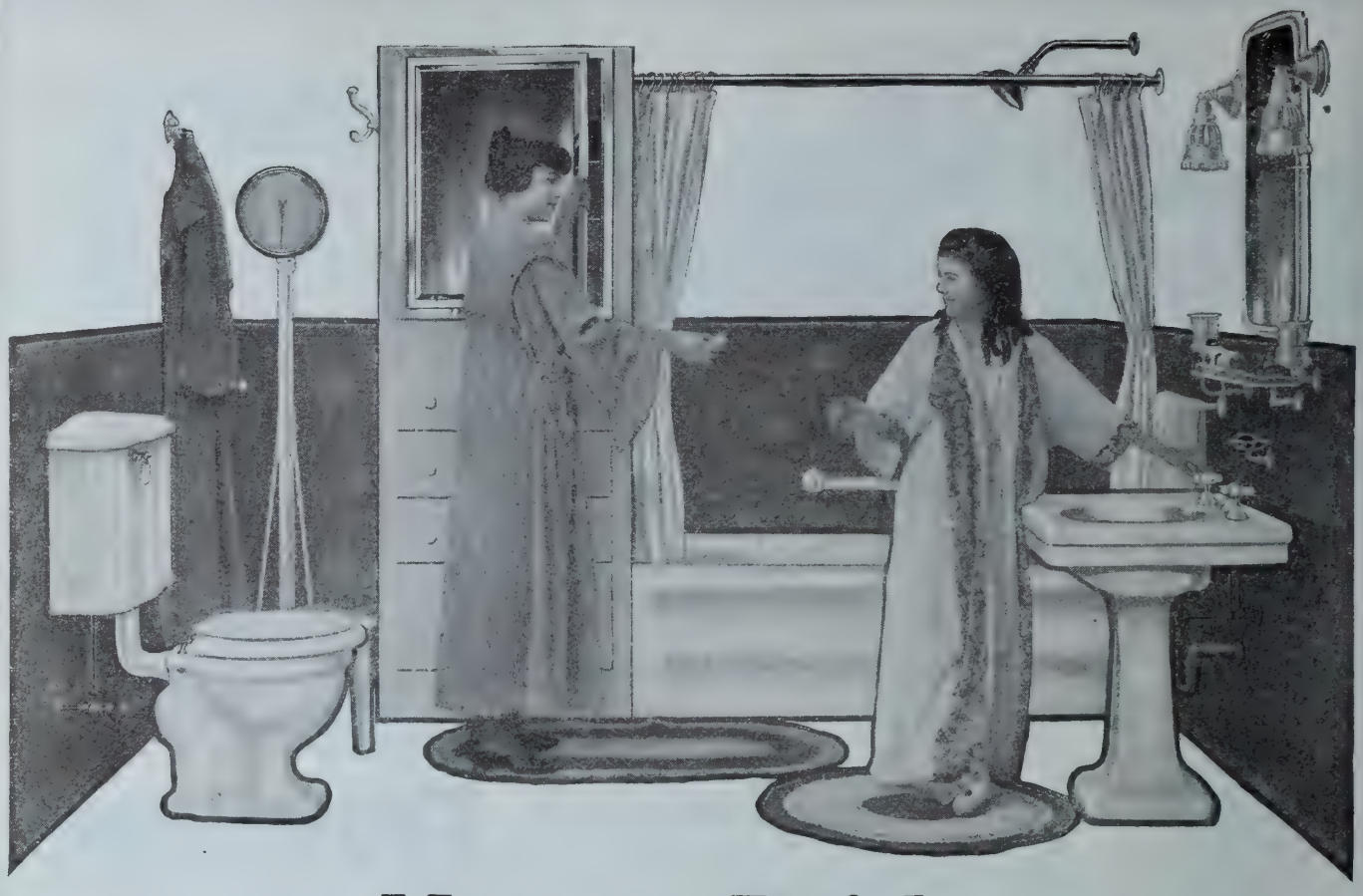
TORONTO, CANADA

Works: Toronto, Montreal. Branches: Montreal, Calgary, Winnipeg, Vancouver



Home Pride

Home is the centre of civilized life. Things that enhance health, comfort and bring good cheer are necessities.

House owners and builders realize that the modern home demands more than one bathroom. Many men have two or more cars—why not more than one bathroom?

The task of making guests more comfortable lends pleasure and not worry when the host has ample bathrooms properly equipped with sanitary plumbing fixtures.

Plumbers that keep in mind the **more than one bathroom idea** when talking to house owners and builders will find their suggestion welcomed and it will work out to their own profit as well.

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325 Eighth Avenue West

Vancouver:
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"MADE IN CANADA"

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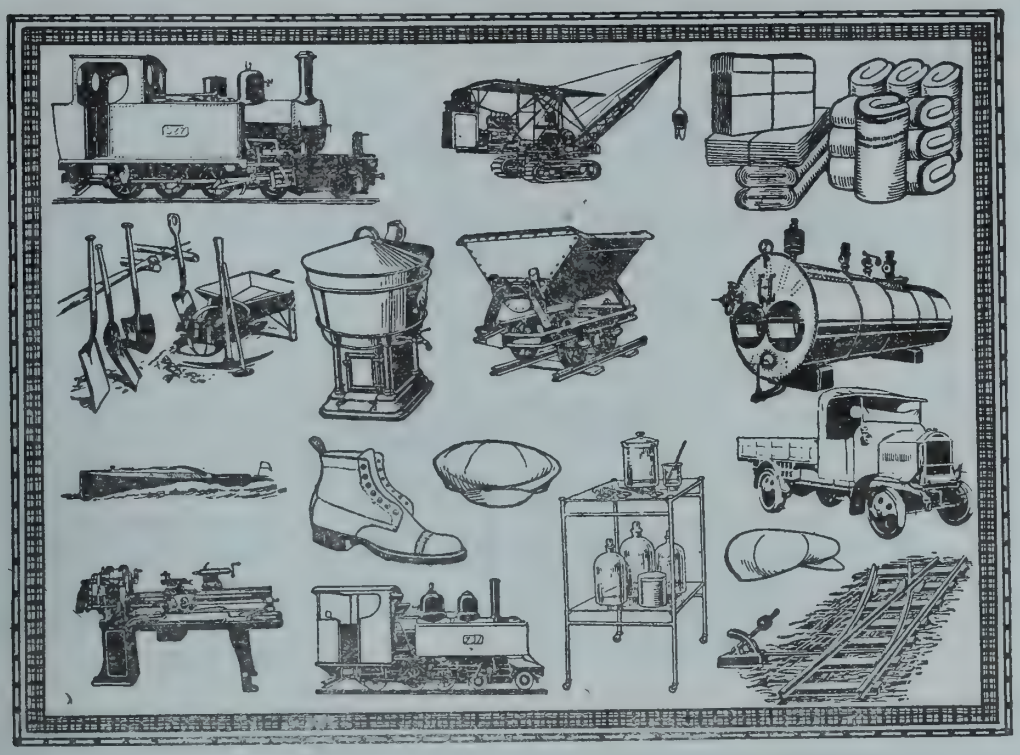

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Made in Canada

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

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With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS
With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads.

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

KERR VALVES

possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.

They insure the best of service, and stamp any job on which they are used as well equipped.

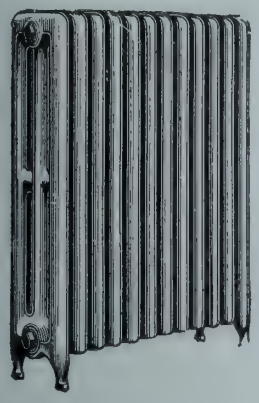
Use Kerr Valves. They give character to your work.

Catalogue No. 5 on application.

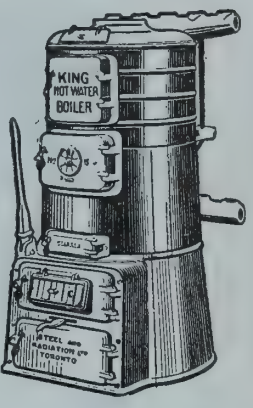
THE KERR ENGINE COMPANY, LIMITED
Valve Manufacturers
WALKERVILLE, ONTARIO

Boost King Boilers! They Will Boost You

Satisfaction and Big Profits Follow the Sale of



KING HOT WATER BOILERS AND IMPERIAL RADIATORS



Form a heating system which gives satisfaction to every householder where it is installed. Economical in the consumption of coal, it heats every corner in every room in the house. There's a long winter ahead. Gain the confidence of your community by installing King Boilers and Imperial Radiators. We can give prompt delivery.

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Trouble-Free Plumbing Service

TRADE JENKINS MARK
Jenkins Bros

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Their 56 years' record of service under the most trying conditions of usage is a guarantee of satisfaction.

There are many imitations of Jenkins Valves. But if the Diamond Trade Mark is cast upon the body you know it is the genuine Jenkins.

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Jenkins Bros.
LIMITED

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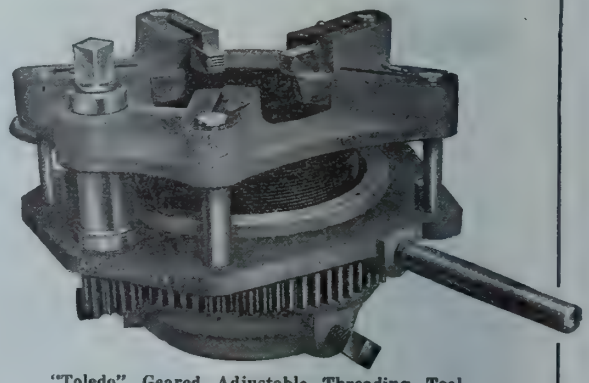
TRADE JENKINS MARK Jenkins Bros

JARDINE and TOLEDO PIPE THREADING TOOLS



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THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or gimcracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

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Sole licensees to manufacture and sell Toledo Pipe-Threading Tools in Canada.
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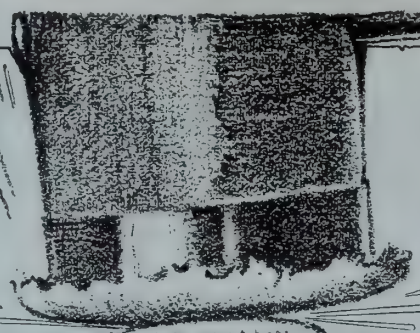

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PROFITABLE BUSINESS

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Bathroom and laundry fixtures, pipe, connections, fittings and labor will be needed immediately, *and you are the man who will get this business.*

"DURO" Water Systems win friends and hold them by their uniform, satisfactory service.

Built for shallow or deep wells, supplying every residence requirement for running water. Write for Bulletins, prices and full information.

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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XIV. - TORONTO, NOVEMBER 1st, 1920 No. 21

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RECOMMENDS ITSELF

After all is said and done, unless a product has REAL MERIT and is able to deliver the service expected of it, sooner or later it is replaced by something better.

The **Pussyfoot** closet tank is sold on MERIT, and will give you satisfactory service year in and year out.

The **Pussyfoot** typifies the particular tastes of Canadian home-builders.

It completely fills the need of a quiet operating closet, and is

SILENT — EFFICIENT — DURABLE

The "ARISTOCRAT" Laundry Tub

is the most perfect Tub on the market.

We also make

LEAD PIPE — SHEET LEAD

EASY WIPING SOLDER — CENTRIFUGAL AND DRAWN LEAD TRAPS
BLOCK LEAD — BRASS FERRULES, ETC.

Specify to Your Jobber

PUSSYFOOT CLOSET TANKS - ARISTOCRAT LAUNDRY TUBS
EASY WIPING SOLDER

***If your Jobber cannot supply you
Order direct from our nearest factory.***

THE CANADA METAL COMPANY, LTD.

TORONTO HAMILTON MONTREAL WINNIPEG VANCOUVER

How Watkins Beat January

In the maze of tenements on the East Side of New York, was one a little more "down at the heel" than all the rest.

Imagine the suffering of the tenants of this flimsy building, when one day, in the coldest January New York had ever known, their source of heat was suddenly cut off. The old tubular return boiler in the basement had developed a severe leak in one of the seams.

The landlord called in Watkins, the plumber, who said the boiler couldn't possibly be caulked, plugged or laced again. A new boiler was needed. But how about the people freezing upstairs?

Calling up his shop, Watkins told a helper to bring him five gallons of

SE-MENT-OL

Within an hour after the SE-MENT-OL was put into the boiler, the leak stopped and the system was ready to furnish heat until the new boiler could be installed.

SE-MENT-OL will help **you** give your customers the best possible service. Will not cause foaming. Has no disagreeable odor. Sold by leading jobbers everywhere.

The coupon below will bring you complete information.

The Northwestern Chemical Co.

1811 State Street, Marietta, Ohio, U.S.A.

CANADIAN FACTORY: MONTREAL

NORWESCO Iron Cement

For large leaks and cracks which cannot be repaired by a boiler compound alone, use NORWESCO IRON CEMENT on the outside of the leak. This iron putty stops the rapid flow of water and hardens quickly. Boiler SE-MENT-OL will repair the leaks on the inside.

BOILER
SE-MENT-OL
REG U.S. PAT OFF.
1 QT US STANDARD 5/6 QT IMPERIAL MEAS
NORWESCO
The Chemically Correct Line
TRADE MARK REG. U.S. PAT OFF.
REPAIRS LEAKS IN HEATING SYSTEMS QUICKLY AND PERMANENTLY
FINDS THE LEAK AND FIXES IT
ALL YOU NEED FOR LEAK REPAIR JOBS

THE NORTH-WESTERN CHEMICAL CO.
1811 State St., Marietta, Ohio

Gentleman:— Please send me your special discounts and the name of the nearest jobber who sells Boiler *Se-Ment-Ol*

Name_____

Address_____

Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO, NOVEMBER 1, 1920 No. 21

Building Business in a New Locality

Some of the Factors Used by M. T. Rodwell, Proprietor of Eclipse Plumbing and Heating Co., Toronto—Value of a Good Store With Display Facilities—A Suggestion for the Service Car—Blotter Advertising Sold Twenty Heaters—Study Salesmanship to Give Customer Best Service and Get Best Business Returns.

A NUMBER of difficulties confront the commencement of a plumbing and heating business in a new district. M. T. Rodwell, proprietor of the Eclipse Plumbing & Heating Co., 713 Danforth Ave, Toronto, finds that it requires a careful study of conditions in order that the difficulties afore-mentioned may be successfully surmounted.

Owing to the fact that the natural increase of Canada's population makes it necessary for the extension of residential areas, and that such extension having been neglected in recent years is bound to be commenced with a rush within a short time, there will undoubtedly be much re-location of plumbing businesses in new residential districts and the consideration of how Mr. Rodwell has handled the question is therefore of interest.

It is only of recent years that the Danforth Avenue district of Toronto has developed. The extension of residences, stores and car lines through the district has been the work of but a very few years and to-day this district houses many thousands of citizens of all classes. Much educational work has had to be done by this firm in order to establish a group of good customers as the nucleus of this business.

Discussing the matter with Sanitary Engineer, M. T. Rodwell, proprietor pointed to the prime necessity of the plumber having a store in order to secure business in a new locality. It is a certainty that the old plan of working "from a cellar" cannot hold good in a new district, for people will not know where to reach the plumber when wanted.

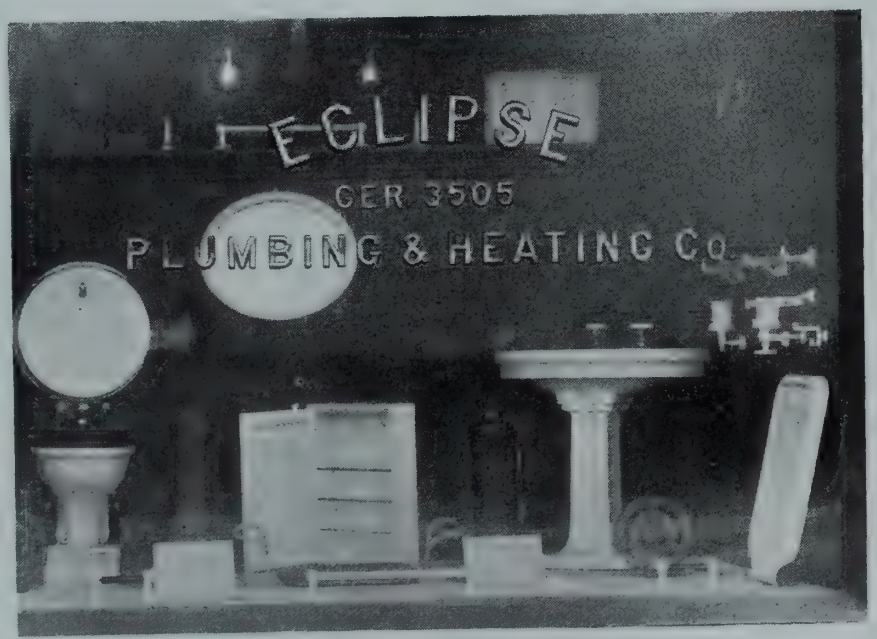
Store Is a Big Asset

"A store is a great asset to us and it has helped our business considerably. If the store is kept as it should be the displays will create a desire in the customer's mind and it is then up to the salesman to do the rest," said Mr. Rodwell. "Without a store all kinds of difficulties are met with, especially in regard to the sale of fixtures."

The interior of the store occupied by this firm, is well arranged to show plumbing fixtures to best advantage. An important point is that the store is well lighted at night, thus showing up well the highly polished enamelware and nickel plated ware and acting as a splendid advertisement of the manner in which passersby might expect a plumbing job to be executed in their own home. The contrast with old plumbing shop methods is so great that much interest is aroused and the endeavor to lift the trade to a higher plane by the use of modern store and fixtures is highly appreciated.

The walls of the store are panelled and bathroom mirrors comprising a wide range are displayed thereon. Standing on the floor, close to the walls, is a range of wash basins, closets, etc. It is the endeavor of the display to arrange the various fixtures much as they would be likely to appear when installed in the average bathroom. Thus the mirror is suspended over the wash basin. This plan helps the customer to fix in mind how the fixtures would look in the bathroom on which he is planning and helps to make a sale.

Other lines such as laundry tubs, sinks and bathroom accessories, such as towel hangers, soap dishes, brush holders, sponge racks, etc., are attractively displayed on both sides of a panel of about four feet in height which extends down the centre of the store.



A good range of plumbing fixtures attractively displayed in the window of Eclipse Plumbing and Heating Co., 713 Danforth Ave., Toronto, M. T. Rodwell, proprietor. The fixtures are kept well polished and the window is well lighted at night—a constant advertisement suggesting the quality of workmanship which might be expected on any job. Neatly printed window cards are used in the display. One of these says, "If your plumbing system eats too much coal, we can make it economical at small cost."

An automobile is used as a service car by this firm, and a useful idea employed in this car is a set of drawers for carrying fittings and all accessories likely to be required. There is a section for the various lines and this enables a better check to be kept upon the stock in hand and thus prevent the delay oftentimes encountered through having to send away for parts before a job can be finished.

Blotter Ad Sold Twenty Heaters

In respect to advertising Mr. Rodwell also had a suggestion. He has found that blotters are an effective medium of publicity if they are distributed to the most likely source of business. Two samples of the message which appears on the front of the blotters are shown herewith. One of them asks, "What about that hot water connection to your furnaces, etc.? It's important to have it done now before the rush." The blotters are issued periodically and a timely message is given on each. The other message deals with the installation of instantaneous water heaters. The address and telephone number are prominently shown on each.

Evidence of the success of the blotter plan of local advertising is found in the fact that this firm sold over twenty heaters following the recent issue of a blotter. The sales were traced to the message given through this medium.

Post Cards with Photo of Store

Post cards with a photograph of the store front, such as is also shown herewith, are sent out to a list of prospective customers as an aid in soliciting their patronage. The window display is always kept shining and clean and displays of those lines which are in greatest seasonable demand are shown. Thus the picture on the post card advertises the seasonable lines which the prospect may have in mind and the neatness of the display is intended to appeal to prospects as an indication of the workmanship they may expect.

Stability of Prices Is Essential

"Satisfied customers is the aim we have always had in mind," says Mr. Rodwell, "and price a secondary matter, though stability in prices is absolutely essential in the running of a successful plumbing business." Mr. Rodwell uses a modern price service and finds that ability to quote a price without any hesitancy is an important factor in impressing the customer in the store.

"Make a good impression upon your customer by being able to furnish prices immediately they are required," says Mr. Rodwell, "for any hesitancy causes doubt on the part of the buyer." Doubt of the plumber's price is a thing which must be eliminated as much as possible because a hit-or-miss plan of calculation such as has been followed to a great extent in the past has been partly responsible for putting the plumbing business in a questionable light, from which all progressive plumbers are now endeavoring to get away.

ECLIPSE PLUMBING & HEATING CO.
RODWELL BROS., Proprietors
LET US INSTALL AN INSTANTANEOUS WATER HEATER
A NECESSITY IN EVERY HOME
REPAIRS A SPECIALTY
AT YOUR SERVICE - PHONE - GERRARD 3505
OR CALL AT
713 DANFORTH AVENUE
What about that Hot Water Connection to Your Furnaces etc. Its Important Have it Done Now Before the Rush.
RODWELL BROS. PROPS
Eclipse
Plumbing & Heating Co.
REPAIRS A SPECIALTY
AT YOUR SERVICE
PHONE GERRARD 3505
OR CALL AT
713 DANFORTH AVE.

Samples of the message given on blotters sent out by Eclipse Plumbing and Heating Co. periodically. The message is always seasonable and right to the point, each blotter dealing with some specific line. It was this blotter showing the heater which sold twenty heaters within a short time after the distribution of this message, as outlined in the article herewith. The address and telephone number of the firm is prominently shown on each blotter.

Show Prices Plainly

In order to avoid any misapprehension as to prices this firm follows the plan of having all fixtures on display plainly price marked and within easy reach of the customer.

Ability to deal with customers in a pleasing but businesslike manner is a big asset to the plumber, according to Mr. Rodwell, and to help in educating the trade along this line he suggests the advisability of plumbers taking a course in salesmanship. It is an undoubted fact that lack of selling ability has resulted in a big loss of business to many plumbers and the suggestion is therefore important.

Cost-plus Basis of Charging

In calculating the charge for certain jobs this firm follows the "cost-plus" system based on the cost of the material used plus the charges for installation. Complete information is furnished with each bill and Mr. Rodwell finds that there is little difficulty in making collections in good time. The customer receives his bill for the job the day after the completion of the work. This plan indicates business-like methods and carries a sort of subtle suggestion that similar quick settlement is desired.

Shows Net Profit on Each Job

The bookkeeping system used by this firm is that which shows the net profit on each job in a separate column. Thus it is an easy matter for the management to figure out where they stand and thus enable them to guide their business to the best advantage.

Part of the service given to customers by this store, and as emphasized elsewhere in this article, was typified by the question, "Have you any complaints?" asked a customer leaving the store. It is just such seemingly small matters that count in building up a new business in a new locality.

YORK TOWNSHIP WATER SUPPLY IS AUGMENTED

The task of supplying water to the section of York Township lying along the northern and western borders of Toronto is all but completed. Reeve Fred. H. Miller turned on the valve at Eglinton Avenue and the Weston Road, connecting the last stretch of trunk mains. Now the trunk mains are all laid and the six-inch street mains are rapidly being installed. The opening of the valve added 4,300 users to the township water system.

What Plumbing Has to do With Rents

Fire Protection and Comfort of Tenants in a Building Largely Established by Plumbing and Heating Facilities—Other Facilities Have Less Effect Upon Value of Buildings for Rental Purposes

(Continued from last issue)

Editor's Note:—Herewith is the second lecture of a series prepared by the National Trade Extension Bureau of the U. S. in considering various phases of the plumbing business. This instalment deals largely with the relation of plumbing costs to present day property rentals. The lecture is reproduced in the form in which it is supplied to master plumber organizations throughout the United States, where it is read before such organizations by some one member. It contains a great deal of very useful information to the trade in Canada as well, and, furthermore, gives some idea of the service which may later be rendered by a similar organization in Canada.

THE true intent of modern commerce or business is to bestow benefits, and we feel that we, as a craft, have contributed our part to American civilization by very largely protecting one of the nation's most valuable resources in the form of the health of the community.

Let me impress this thought forcibly upon your minds by drawing this crude picture of an office building on a blackboard.

This drawing is intended to represent an eight story office building. Of course, any other kind of a house or building could be made the subject of our illustration, but this will serve our purpose thoroughly well. The little squares represent the toilet rooms. In the front and rear of the building are fire lines, in the rear is one line of lavatories. Near the front is a line indicating the run to the various steam heating radiators. Of course, the various lines could be shown entering every room, but we will not go into that detail. In the centre of the building we show the stairway and elevator. We might also show the vacuum cleaning lines, drinking water lines, compressed air lines, and other plumbing facilities that a modern office building has for the comfort and efficiency of its tenants, but that, too, would be unnecessary detail.

Now, we will assume that the office space in the building rents for two dollars per square foot per year. Now let us see just what plumbing and heating has to do with the rents of this building. To illustrate this point we will erase, or take out of this building, step by step, the plumbing and heating appliances to see just what will happen. The first thing we will eliminate is the fire lines.

(NOTE: Take your eraser and rub the fire lines off your blackboard drawing).

What has happened? The fire risk is greatly increased, the insurance rate will go up, the lives of the occupants have been greatly endangered, rents must be decreased, but the building could still be rented, although at a reduced rate.

The next cut we will make is that of the wash basins in each of the rooms.

(NOTE: Rub out the lines in drawing indicating the lavatory lines.)

Again we must reduce the rent; for the comfort and efficiency of the occupants has been greatly reduced, although the building will still attract a certain class of tenants. However, renting space in a building lacking such equipment is false economy. Employees lose much time running the length of hallways to wash their hands, or they become careless, which results in untidy work. Either will cost much more than the difference saved in rent. Fix the above facts firmly in your minds, for they are good selling arguments. To locate such facts as outlined above is one of your foremost selling problems, and you cannot be a good salesman unless you have made a study of such points.

We could next remove the elevator from this building and still rent every inch of the floor space for certain lines of business. The occupants could use the stairway, and do so in a great many buildings of four and even five stories in height.

But what would happen to this building if we cut out the toilet rooms?

(NOTE: Erase toilet rooms.)

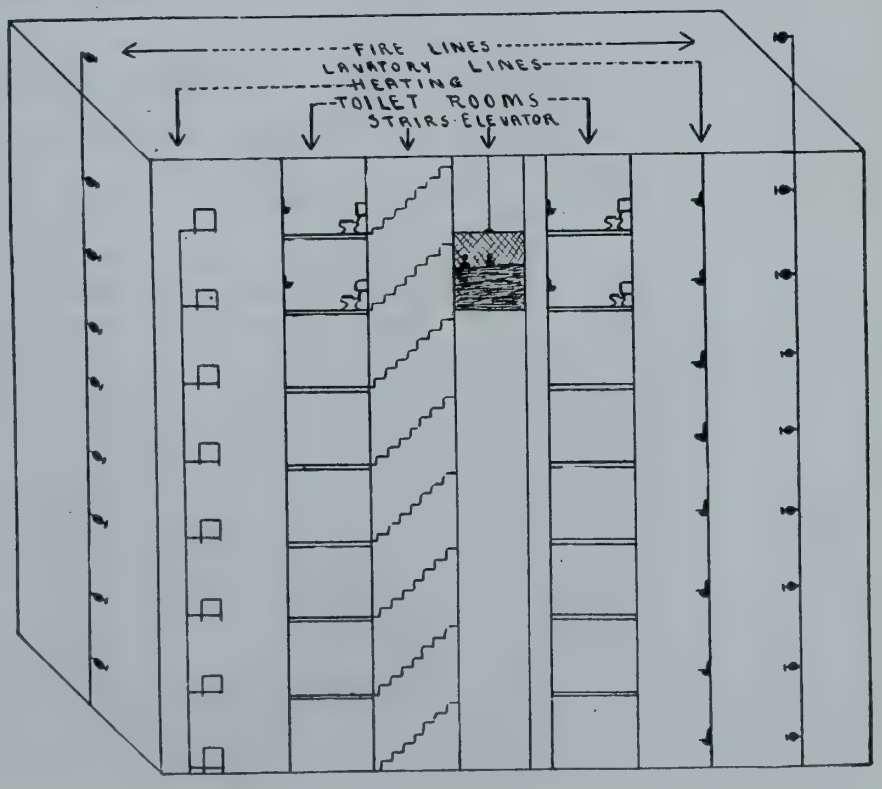
The building would be an empty shell no matter how it was otherwise finished or decorated. People could not and would not occupy a building of this kind without plumbing, for it would ruin the health of the occupants; to say nothing about the absence of conveniences that people in this day and age demand. Employees are never content to remain with firms occupying buildings that do not have proper plumbing facilities.

The same would hold true in 75 per cent. of the States of the Union if the heating plant was eliminated, for it would be impossible and impractical to try to heat a building of this kind with stoves or grate fires.

(NOTE: Rub out heating lines.)

By this illustration it is evident that the plumbing and heating contractor is responsible for five out of seven of the most important elements that go to make a building comfortable and safe for human occupancy.

The point driven home with this illustration is this: You should make a prac-



tice of pointing out to kicking customers and critics of the plumbing and heating business the real importance of plumbing and heating. No better or more convenient way can be used than the method I have just demonstrated by drawing a picture.

You may say that you haven't time. Let us see if that is true. There is an old adage "a stitch in time saves nine." This saying is very old, but it was true the first time it was ever uttered, and it is just as true to-day. If you will apply the stitch to-day, and take the trouble to make a sane and satisfactory explanation to the displeased customer, you will save nine other complaints at some future time.

More than this, men and women whom you have enlightened will scatter this information at their very next opportunity. People take pride in demonstrating how well informed they are. We need to stimulate general discussion relative to the importance of plumbing and heating, and it is up to each and every one of us to help promote it. We have a message that we can take pride in delivering, for to-day the plumbing and heating contractor brings to the home much comfort, health, cleanliness, and even elegance at a cost one-tenth as great as our grandfathers would have had to pay.

To-day our people would not do without modern plumbing and heating for ten times the cost. Yet our industry has not amassed wealth as has the banker, the lawyer, the doctor, and innumerable other lines of commercial endeavor which have rendered the buying public no greater service than has the heating and plumbing contractor.

But after all who is to blame for this unjust state of affairs? The guilty party will not be exposed at this time. We shall allow you to assume the role of Sherlock Holmes, and, if you follow the evidence we have to submit, we are quite sure you will have no difficulty in locating the guilty party at the conclusion of these lectures and discussions.

The National Trade Extension Bureau, with its broad field from which to gather information and the experience of men in this and other lines of business, furnishes us with information which we, as individuals, could not collect in a lifetime. We are fortunate, beyond expression, in the fact that this service, which is worth thousands of dollars to every man in this room, is absolutely free, Therefore, we would be fools, pure and simple, to pass up this golden opportunity. We must not allow anything or anybody to keep us away from this series of meetings, for there is no end to the possibilities in this business. There is plenty of business to go more than around, but each and every one of us must do our full part to the end of "cashing in" on these possibilities.

We are indeed fortunate that the National Association of Master Plumbers, the Heating and Piping Contractors' National Association, and the jobbers and manufacturers whose names can be found at the back of the T. E. B. Monthly Service Bulletin, have established this bureau, whose duties are to furnish us with facts and figures to help us to become bigger and better business men.

To go on, as we have in the past, with a part of our business methods in fair shape but the major portion full of faults, is wasting opportunity. Particularly is this true of our offices and stores. The office of a plumbing and heating establishment can make or break the proprietor. It might be even further said that there is no legitimate business on the earth, which calls for the same finances, more profitable than this, if the office and store are properly and efficiently conducted.

The question of efficient business management is therefore the prominent problem. This question has long been one of much concern in many other lines of business. Trade promotion organizations have been in existence in the lumber, cement, hardware, electrical, automobile and other industries for several years. The experience and benefits derived from these organizations in the past, combined with a wealth of information from the experience of our own industry, is now being furnished to the plumbing and heating trade by and through our own National Trade Extension Bureau.

As late as 1912, the United States Government, through the Federal Trade Commission, learned that only five per cent. of the merchants in the United States really know what the goods actually cost that passed over their counters. This fact was the real cause for the educational work that was undertaken by the industries outlined above. They taught their dealers and craftsmen to know more about that fundamental question in the conduct of a successful business, so that they could give the public better service at a reduced cost.

As shown before, it is an undisputed fact that the sanitary equipment of the home renders a life-long service to all members of the household, a service which cannot be dispensed with and still retain the health of its members. Therefore, our work renders a higher quality of service than do the furnishings of the home. These, it is true, contribute to style, display and comfort, yet are only short lived, and cannot begin to measure up with our disease-preventional service, and comfort giving material and workmanship.

The thought is this: Measure the nature of service, period of service, first cost and maintenance of the equipment in and about modern American homes, public buildings, apartments, and other buildings generally. When the thinking person does this, in full fairness, he is bound to find that sanitary plumbing and efficient heating and ventilating return the owner far more on his investment than any other equipment. Yet, our business operations do not furnish our industry any such profits as are enjoyed by other business enterprises providing other equipment. We purpose to prove this statement by illustration and comparison with various mercantile and manufacturing lines.

We realize that we are now in the midst of a mighty vital subject, and were it not that we have at hand authentic data enabling us to prove our statements which will follow, never would we attempt to enter the discussion.

To Protect the Honest Debtor

G. T. Clarkson Who Helped Frame the New Bankruptcy Act Explains Its Details—Is a Check on Fraud—Standardize Basis for Winding Up Estates.

G. T. CLARKSON, who was a member of the committee that assisted the Dominion Government in framing the new Bankruptcy Act, which came into effect on July 1 last, recently traced the history of insolvency legislation from the time of Confederation down to the present, and outlined a number of the outstanding features of the new act. Under the terms of Confederation, the Dominion Government has control over all matters affecting bankruptcy, and the Insolvency Act was passed in 1869. This act remained in force until 1880, when it was repealed, and since that time action regarding bankrupts had been carried on under the provisions of the various Provincial Assignment Acts. Owing to the fact that there were nine of these acts in force throughout the Dominion, and each of them different to a more or less degree, it was decided to have Dominion-wide legislation that would control all matters pertaining to bankruptcy.

The new Bankruptcy Act supersedes the Provincial Assignment Acts, which, although economical, were varied, and to a large extent also supersedes the Winding-Up Act, although in certain cases connected with corporations, the creditors can decide whether the latter legislation will be used. The new act governs all matters affecting the insolvency of individuals, partnerships and corporations in Canada, except banks,

(Continued on page 26)

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

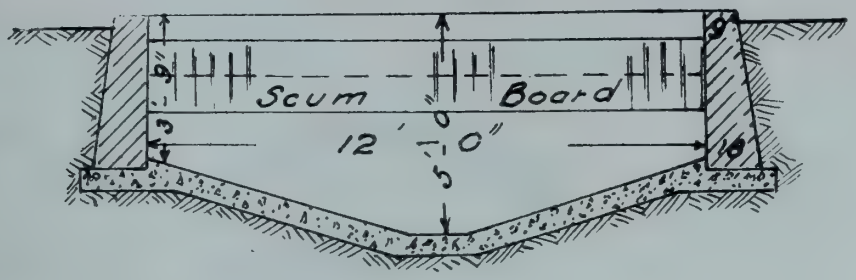


FIG. 25.

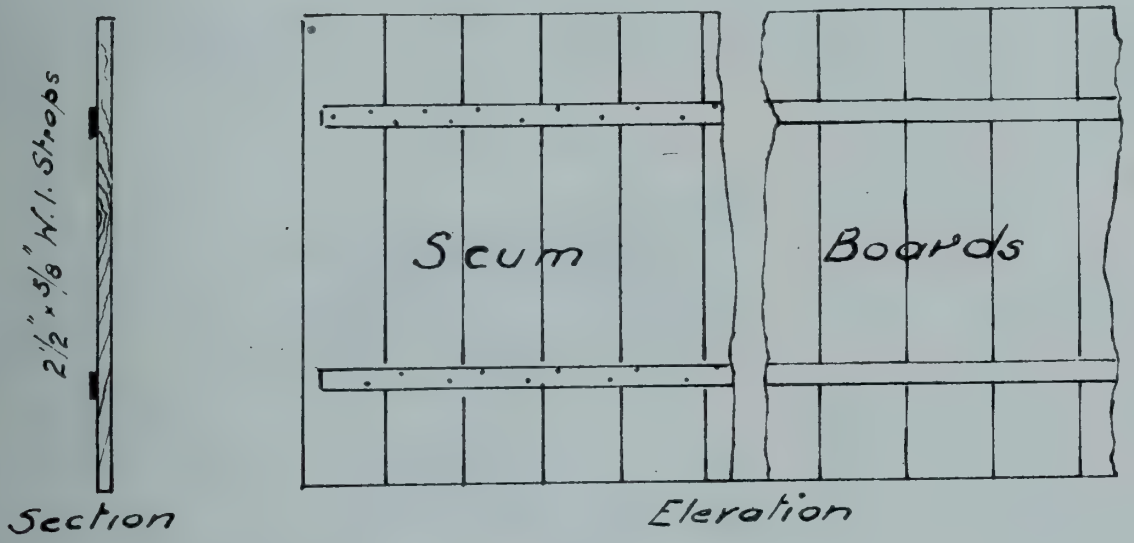


FIG 26.

Article No. 19 of the Series

ILLUSTRATIONS NOS. 25 AND 26

(Continued from last issue)

SEDIMENTATION tanks or mechanical settling tanks are, for economical reasons, constructed rectangularly, sewage being passed through these tanks at a slow velocity, allowing the solid suspended matter to gravitate to the bottom of the tank and it usually falls to the inlet where the majority of the deposited sludge accumulates. In the centre of the tank or at the lowest elevation of the tank bottom, a sludge sump is constructed connected to a sludge drain, open and closed as required by a land plug valve for cleaning out purposes.

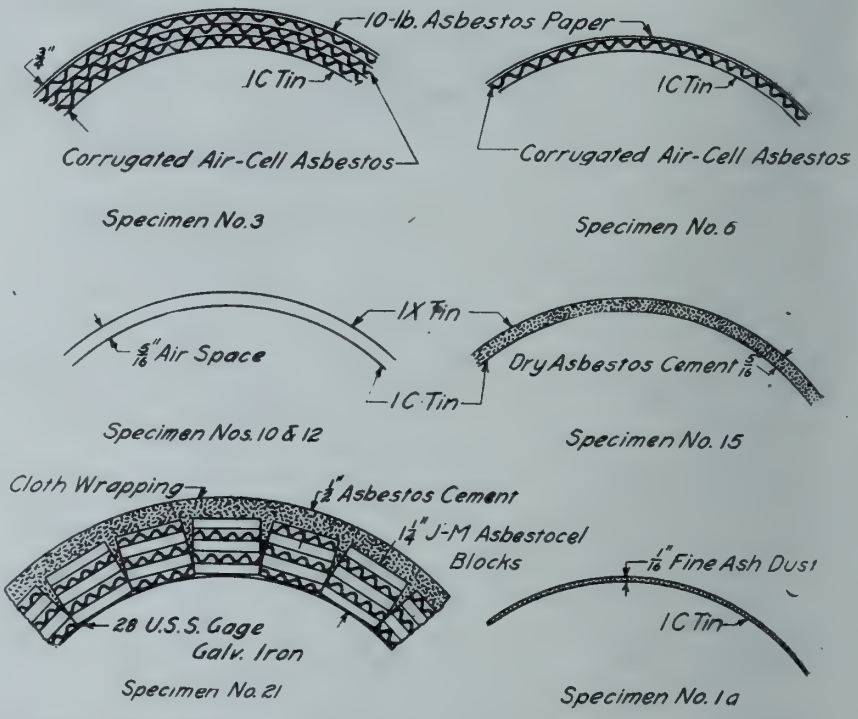
For efficient and best sedimentation purposes the sewage should pass into and out of the tank over a weir running the full length of same so that a constant velocity can be obtained throughout the whole water area of the tank. This never occurs in a central pipe feed as the current, or velocity, is greatest in direct line between the inlet and outlet and several stagnant areas are always formed in this style of distribution.

Fig. 25 shows a longitudinal profile through a sedimentation tank, filters and sludge bed, which gives the grades and an ideal location as regards the natural fall of the land.

Uncovered Furnace Pipes Lose Less Heat Than if Covered

Important Tests Show That Use of Thin Sheets of Asbestos Paper on Bright Tin Heat Pipes Results in Waste of Heat—Heat Loss 39 Per Cent. Greater With One Thickness of Paper Than Without —Double Wall Tin Pipes Have Good Merit—Favor Galvanized Iron Leader Pipe—Demonstrate Uneconomical Effect of Any Oil Paint Applications on Heat Pipes

Editor's Note. — The work reported upon herewith was done in connection with the warm-air investigation at the University of Illinois. This investigation has for its object the determination of the efficiencies and capacities of warm-air furnaces and a study of the proper conditions of installation and operation so that furnaces may be accurately rated and properly selected for the requirements of actual service. The work is being conducted under a cooperative agreement between the National Warm-Air Heating and Ventilating Association and the engineering experimental station of the University of Illinois. Herewith is a report of the tests of heat insulating materials and surfaces, made as a part of the investigation. Full details of these various tests will be of interest to the heating contractor in Canada and Sanitary Engineer has therefore secured a full report of the investigation.



IN May, 1919, it was observed in tests that greater temperature reduction occurred in air passing through bright tin pipes covered with asbestos paper, such as are commonly used in furnace heating, than occurred in air passing through the same bright tin pipes uncovered, all other conditions in the comparative tests being the same. It was therefore evident that the actual heat loss was greater through the asbestos paper-covered pipes than through the same pipes uncovered.

This fact was reported at the annual spring meeting of the National Warm-Air Heating and Ventilating Association, Columbus, Ohio, June 11, 1919, as follows: " . . .We found that we lost about 35 per cent. more heat through the pipe covered with asbestos paper than through the same tin pipe not covered. . . . This great loss amounts to approximately five per cent. of the coal consumed. . . . Furthermore, it costs from $10 to $15 to cover the heat pipes of the average house installation with asbestos paper."

Because of the inefficacy of many of the present warm-air furnace heat insulating methods, it is evident that a complete study of various insulating materials, coverings and surfaces would be justified.

Significant Conclusions

The results of the tests have been given some publicity heretofore, but not in the complete form presented herewith. The following significant results as applied to warm-air furnace heating are deserving of special emphasis.

(1) The use of thin sheets of asbestos paper on bright tin heat pipes results in a waste of heat. The use should be abandoned.

(2) Uncovered bright tin pipes are more efficient carriers of heated air than asbestos paper-covered bright tin pipes.

(3) This fact is true regardless of the degree of brightness of the tin surface.

(4) No small number of applications of asbestos paper will suffice as an insulator. Several thicknesses are necessary to make a covering equal in this respect to the bare tin.

(5) The accumulation of dust and dirt on the pipes does not greatly alter the amount of the loss.

(6) The heat loss from warm-air furnace pipes covered with one layer of asbestos paper is a serious item in the cost of heating, amounting to more than five per cent. of the coal consumption, depending upon the number and size of the pipes used.

(7) The fact that pipes are partly protected from convection currents of air by joists and studding does not greatly affect the loss.

(8) Unless the insulation excels the uncovered bright tin in heat insulation properties it should not be used.

(9) Such materials are available and the tests have shown their merits.

The Testing Equipment

The report mentioned, which was made at Columbus, Ohio, gave the results of tests on the auxiliary testing plant. It was difficult to obtain entirely satisfactory data on this plant because of the variation in the velocity of the air flowing up the leader and the difficulty of correctly measuring the temperature of the air. It was therefore decided that a special apparatus should be devised which would eliminate possible errors in temperature measurements.

The apparatus here described was the one used in the tests reported in this bulletin. It consisted of low pressure steam heated drums, five in number, surrounding a central steam header from which the drums drew their supply of steam. The drums were accurately uniform in size, ten inches in diameter by 20 inches in length, and were made of sheet metal of the kind to be tested.

(Continued on page 26)

Heating and Ventilating

Combustion

Written for Sanitary Engineer by N. A. KEARNS

(Continued from last issue)

Now a cube of coal of sixty-four cubic inches has ninety-six square inches exposed to the oxygen. If the same cube is broken up into four equal parts it has a surface of one hundred and sixty square inches exposed to the oxygen. This greater exposure of the carbon will provide for a higher rate of combustion. This higher rate of combustion will, of course, call for an increased supply of oxygen.

We have already pointed out that chemical combinations can only take place by reason of the union of atoms; and that it requires atom for atom to effect the proper combinations.

The atoms of carbon must unite with the atoms of oxygen to effect combustion; and if enough oxygen atoms are not supplied, combustion must slow up.

This brings us to the question of how much air is required for combustion.

The Air Required

Carbon dioxide is the product of combustion when carbon and oxygen combine.

The symbol for carbon dioxide is CO_2. This indicates that this product of combustion is composed of 12 parts of carbon and 32 parts of oxygen. Therefore, to burn one pound of carbon we find that it requires 2 2-3 pounds of oxygen.

Ordinary air contains 23 per cent. of oxygen. It therefore requires (2 2-3 ÷ 23 =11.6) 11.6 pounds of air to burn 1 pound of carbon.

The nitrogen that is contained in the air takes no part in the combustion; it passes up the chimney with the carbon dioxide.

If there is not enough oxygen supplied to the burning carbon, the carbon and such oxygen as there is present may combine to form carbon monoxide. It only takes half as much oxygen to form carbon monoxide as it does to form carbon dioxide.

When the percentages of carbon and hydrogen, contained in the fuel, are known it is an easy matter to estimate the quantity of air required for their combustion.

When the fuel contains oxygen, less air is required than in those cases where there is no oxygen contained in the fuel; if it contains sulphur more air will be required.

One pound of carbon, or coal, requires approximately 160 cubic feet of air.

Combustion Heat

The quantities of heat, or the heat of combustion, heating value, calorific value, of the elements composing fuels are:

Hydrogen: 62000 B.t.u. per pound.
Carbon: 14600 B.t.u. per pound.
Sulphur: 4000 B.t.u. per pound.

If the carbon is burned to carbon monoxide instead of to carbon dioxide its heat of combustion will be 4400 B.t.u. only.

Combustion Temperatures

A high temperature of combustion is desirable. The water in a boiler will take up heat from a high furnace-temperature much faster than it will from a low temperature.

As a rule, the quantity of air admitted to the combustion chamber is much in excess of what is necessary for combustion. The extra quantity of air enters at a relatively low temperature and escapes up the chimney with heat taken from the fire. A quantity of heat is thus wasted and the temperature of the fire is lowered.

When we make no allowance for the loss of heat, and assuming that there is just enough air to properly burn the carbon, we may say that the temperature of burning carbon is 4,940 degrees F. above zero. The temperature for burning hydrogen is 5,800 degrees F. above zero. However, because of the loss of heat, these temperatures are never obtained in practice.

Smoke

While the escape of black smoke is by no means always a sign of poor combustion it may be safely assumed that incomplete combustion and black smoke often go together.

The coloring of smoke comes from carbon combined with tarry vapors or hydrocarbons.

All kinds of coal contain volatile matter which is given off before combustion begins. These are the hydrocarbons which are distilled from the coal at a temperature below the ignition point of the fuel.

The only way that the hydrocarbon can be completely burned is with a high furnace temperature and an air supply properly mixed with the gases as fast as they are distilled from the fuel.

Spontaneous Combustion

When a combustible body becomes oxidized, and the heat thus generated is prevented from escaping, the temperature of the body will rise. With the higher temperature there will come an increased rapidity of oxidation until finally the temperature becomes so high that the point of ignition is reached.

Spontaneous combustion is likely to occur in a pile of closely packed hay or straw, especially if the hay or straw be slightly moist.

Wood subjected to the heat of a steam pipe may become dry and oxidized until it reaches the point of ignition when it will burst into flame.

Molecules

In writing of combustion it becomes necessary to refer to molecules.

We believe that we can hardly complete this article without again referring to the very important part the molecular theory of matter plays in scientific discussions.

Of the real nature of matter we know nothing. What we do know is how different substances behave under different circumstances.

With the knowledge we have, we attempt to find some reason for the behaviour of matter, and as a ground for our belief we make hypothesis.

But hundreds of experiments have been made to prove that the molecular theory is correct in principle; for although the molecules are so small that they cannot be seen with the most powerful microscope, we know that the behaviour of matter can not be explained in any way so well as in that of the molecular theory.

We intend to refer again to this theory in future articles of the series because it is a theory on which many of our sciences are based; and we believe that the heating engineer has enough scientific interest in his work to appreciate any discussion regarding the theory of the atom and molecule.

EDITORIAL COMMENT

GOOD PLUMBING INCREASES PROPERTY REVENUE

IN the endeavor to establish the true status of the plumbing trade in our community life, an important point that is oftentimes lost sight of is as to what conditions would be without the facilities which plumbing, properly installed, offers to the inhabitants of our cities, towns and rural districts. Many people are inclined to overlook the importance of the plumbers' work, but it is only necessary to analyze what conditions would be, and the widespread effect of plumbing on other factors, to see that plumbing is of a great deal more importance than is commonly realized.

An article in this issue illustrates the effect of good plumbing facilities on rentals. To-day property values are very high and properties must be capable of producing good revenue. Then analyze the situation and see what rental could be secured for the average building unprovided with plumbing and heating facilities. It is established that the plumbing and heating contractor is responsible for five out of seven of the most important elements that go to make a comfortable and safe building. This gives the plumber something definite on which to base an irrefutable reply to those who criticize the status of this branch of business. Plumbing work renders a high quality of service to the community and the plumber will achieve better success by realizing this and attempting to live up to the nature of the service he renders. It is quite evident that the installation of sanitary plumbing and efficient heating returns to the owner much more on his investment than any other equipment in the home, and despite this fact the plumbing business returns to its craftsmen a smaller profit than accrues to practically any other branch of industry. This condition can only be corrected by the plumber studying how he can elevate his business to the place where his methods will not be questioned and where his volume of trade will be larger and when he can educate his trade to the importance of the work he does.

INTERESTING RESULTS OF FURNACE PIPE TESTS

OF much interest to heating engineers will be a consideration of the results of tests made by the National Warm Air Heating and Ventilating Association, concerning the emissivity of heat under varying circumstances. There will be a number of tests made such as that outlined in this issue which points out that the use of ordinary asbestos covering over bright tin furnace pipes results in a loss of heat greater by 5 per cent. than in the use of uncovered pipe. Taking into consideration the high cost of fuel to-day this loss of heat warrants attention. It was proved that the best insulators were those classed as air-cell combinations or the use of double wall pipes.

It was also proved that the use of lacquer on furnace pipes was of no value either from the standpoint of insulating pipes against heat loss or against rusting. The idea of painting over asbestos paper was also shown to be uneconomical from the standpoint of insulating against heat loss though of some value as making the pipes moisture-proof.

EDITORIAL BRIEFS

THIS is the age of substitutes, but there's no substitute for honesty.

* * *

SUCCESS does not go to the man with the most opportunity, but to the fellow who makes the most of his opportunity.

* * *

NOTHING is so contagious as enthusiasm; it moves stones; it charms brutes. Enthusiasm is the genius of sincerity, and truth accomplishes no victories without it.

* * *

GOVERNMENT coffers are being swollen these days with largely increased returns from taxation. Collections for the seven months of the fiscal year ending September 30th this year totalled $29,451,813, as compared with $7,065,-238 in the same period last year.

New Goods of Interest to the Plumbing Trade

GASOLINE FIRE POT No. 71

It is claimed by the Clayton & Lambert Mfg. Co., Detroit, Mich, that the No. 71 Gasoline Fire Pot is the hottest fire pot made and the several improvements in construction make it the most desirable, economical and efficient fire pot for such work as heating soldering coppers, melting lead or solder, and all

Gasoline Fire Pot, No. 71

other work where a high degree of heat is required. The important features that the makers point out are as follows: A specially constructed burner which causes perfect combustion of the fuel, and is noiseless, smokeless and odorless in its operation. The flames from the burner burn from both sides of the centre and there is a sub-flame so that the heating flames can be turned low, thus saving fuel expenses, which can be turned on instantly to produce the maximum heat. The tank is made of heavy gauge steel, tinned inside and out, making it rust proof, and it is fitted with patented cushion protection band which prevents injury to the base of the fire pot. The dust proof cap keeps the gasoline perfectly clean. A patented improved automatic pump supplies ample air pressure quickly. This fire pot is equally satisfactory for use in wind or storm, as the flames are protected with a hood with cover. Every part of the fire pot is made strong and durable to withstand hard service.

THE ENTERPRISE BLAZER PIPELESS FURNACE

The Enterprise Foundry Co., Ltd., Sackville, N.B., in introducing the Enterprise Blazer point out some of the advantages of this type of furnace. These are: no hot air pipes are required to convey the heat it generates to the various rooms, there is no tearing up of walls and no unsightly pipes to disfigure rooms, and it takes up very little room in the cellar, there being no pipes to have to dodge under.

The Enterprise Blazer Pipeless Furnace has three complete casings, the outer and middle ones of galvanized iron with space in between forming the return or cold air pasage. The inner casings consist of sheet asbestos and corrugated tin with an airspace in between forming an insulator. This inner casing set at a distance from the heater forms the hot air passage and the air space formed by the corrugations of the tin together with the sheet asbestos form, it is stated, a perfect insulator, and heat generated is not allowed to escape into the cellar where it is not needed, but ascends up through a radiator into the rooms upstairs.

The firepot of the Enterprise Blazer is extra large and heavy and is made in two sections, the coal grate is a triangular anti-clinker grate. For wood, a grate is furnished which can readily be put in and taken out. The combustion chamber of cast iron is fitted with an extra large feed door and the furnace has a deep and roomy ash pit, and a large cast iron water pan.

The Enterprise Blazer Pipeless Furnace is made in three sizes. No. 2500 has a firepot 18 inches in diameter, No. 3500K one of 20 inches, and No. 4500K one 23 inches. The rating capacities of the furnaces are estimated from 8,000 to 35,000 cubic feet.

KIT HAXAW SET

A new tool has made its appearance in the form of a small rigid hack saw, designed to do the work where the present hack saw fails. It is claimed to be particularly adaptable for the tool kit for an automobile, for the carpenter who wants to cut away a nail or renew a screw slot, for the plumber whose work in repairs is almost always in cramped quarters, for the electrician whose work on small sections and close quarters requires a free end saw. For the household it is complete for numerous uses. The jewelry trade have taken to it instantly and its value as a practical tool has been instantly recognized by the mechanical world.

The saw blades are stated to be made of the highest quality of tungsten hack

"Kit Haxaw" Set

saw steel. The straight edge of the saws has 32 points to the inch left unset; this side is used to start a cut or used as an edge file. The lower edge has 18-20 or 24 points to the inch with enough set to the teeth to assure free cutting.

The saw handle is made of tool steel in a form that permits of the greatest variety of grips. Adjustment of new blades is made with single screw.

The saw was designed and patent applied for by H. C. Pittman, vice-president of the Alston Saw & Steel Co., Folcroft, Pa., Wiebusch & Hilger, Ltd., sole sales representatives, 110 Lafayette St., New York, N.Y.

"NEVER LEAK" TORCH PUMP

The new "Never Leak" pump is used on all torches, furnaces and brasiers now being made by the Otto Bernz Co., Newark, N.J.

The special feature claimed for this

"Never Leak" Torch Pump

pump is that it is so constructed that the plunger "A" can be screwed down and out of the way, preventing it becoming bent or broken. The needle "B" at the bottom of the plunger acts as a double check, for if the internal check "C" gets out of order through the use of dirty fuel, etc., the torch can still be used by screwing down the plunger. Top of cylinder being flared enables user to insert plunger without injuring the washer.

Production of Pig Iron in Canada

Ottawa.—The total production of pig iron in Canada during the first half of 1920, according to statistics by the mines branch of the Department of Mines, Ottawa, was 502,667 short tons (499,891 tons made in blast furnaces and 2,796 made in electric furnaces), as compared with 524,977 tons during the first half of 1919, and 392,804 tons during second half of 1919.

The average monthly production of pig iron during the first half of 1920 was 83,778 tons, compared with an average monthly production of 87,496 tons during first half of 1919, 65,467 tons during second half of 1919 and 76,482 tons for the whole year.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Montreal.—F. Bonhomme & Co., plumbers, have effected a dissolution.

Montreal.—Beck and Heavyside, plumbers, in Montreal, have effected a dissolution.

CONTRACTS AWARDED

Cupar, Sask.—The contract for the heating and plumbing for the new Royal Bank building at Markinch has been let to T. C. Heskeith Co., Ltd., of Cupar.

TENDERS

Toronto.—Tenders marked heating and plumbing, addressed to the Secretary Public Works Department, Ontario, will be received until the 8th November for heating of the Acute Hospital for Women, now in course of erection at the Ontario Hospital, Whitby. Plans and specifications can be seen at this department. Also for heating and plumbing of the English-French Training School, Sturgeon Falls. Plans and specifications can be seen at the office of the Sheriff, North Bay, and at this department.

URGES PASSING OF PLUMBING BY-LAW

Dundas.—Engineer Murdock, at a recent meeting advised the city council to get the plumbing by-law passed. Property owners have approached him asking him, he says, concerning plumbing matters, and until the by-law is passed he could not furnish information. A special meeting to deal with by-laws only will be held at an early date.

THOMAS COTTER DIES IN CALGARY

Winnipeg.—Thomas Cotter, head of Cotter Bros, plumbers, and one of Winnipeg's leading sanitary and heating engineers, died at the Palliser Hotel, Calgary, Alta. He was 50 years of age.

Mr. Cotter had been ill for several weeks. Mr. and Mrs. Cotter and their 13-year-old daughter, Jean, left Winnipeg in June for a holiday. They spent several weeks on the ranch owned by Art Hall, and were on their way home when Mr. Cotter became ill.

Mr. Cotter was born in County Cork, Ireland, and came to Canada with his parents when 13 years old. He came to Winnipeg twenty years ago and established the plumbing business now located at Fort Street and St. Mary's Avenue.

WESTERN ONTARIO NEWS

Basil Cunningham, of the Windsor branch of J. T. Wing & Co., was a recent visitor with relatives at Maidstone, Ont.

Prices are wanted on plumbing and heating in connection with a new $6,000 residence to be erected at Ruthven, Ont., for Hadley McDonald.

Prices wanted on plumbing and heating for a new residence to be erected at Cottam, Ont., for W. T. Conklin, of Kingsville, at a cost of $5,000.

The Wright Teale Co., of London, Ont., have been awarded contract for hot water heating for new $12,000 residence and garage for Emerson Nicholls.

The Windsor Hardware Co. has been awarded plumbing and heating contracts for two new residences costing $11,000 for W. J. Nesbitt at Windsor, Ont.

Plans are to be prepared at once for a new hospital at Seaforth, Ont. A. D. Sutherland is chairman of committee named to get prices on all materials.

David Clapp, for many years with the Union Natural Gas Co., has started in business for himself and opened a plumbing and tinsmithing shop at Essex, Ont.

James Bull has been awarded plumbing and heating work for new $5,000 dwelling at London, Ont., for William Dace.

Plans will be prepared shortly for a $20,000 addition to the Charlotte Englehart Memorial Hospital at Petrolea, Ont. J. L. Englehart will look after all work in connection with plans.

Eggett & Co., of London, Ont., have been awarded a contract for $25,000 for plumbing and heating in connection with the new Hospital for Sick Children to be built by the Daughters of the Empire.

One of the largest contracts of the year will be open shortly at St. Thomas, Ont., it is expected, as the erection of 100 new houses for its employees is contemplated by the Canadian Edison Phonograph Co.

Ben Noble, of the firm of Noble and Rich, London, Ont., was one of those who responded to a toast at Dorchester, Ont., recently, when the choir of Dundas Center Church, of which he is a member, paid a social visit, and was entertained afterwards at a chicken supper.

As a result of complaints made by the Western Fair Board, the city council at London, Ont., will have plans prepared for new sanitary sewer system and lavatory equipment at the exhibition grounds. City Engineer Harry Brazier will look after the work.

At London, Ont., plans are being prepared for a new church, to cost $50,000, for the Christian Church congregation. Hot air heating is planned. Prices are wanted on heating equipment. C. B. King, 386 Dufferin Avenue, London, Ont., chairman of building committee.

Preliminary plans have been approved and tenders will be called shortly for the erection at London, Ont., of a 26-room collegiate institute to cost $750,000. It will be heated by steam and contain the most modern sanitary equipment and ventilating system, also a cafeteria. L. E. Carrothers is the Board of Education architect and will call for tenders.

The civic authorities at Owen Sound took commendable action to protect the public health when they discovered two homes in an unbelievably insanitary state and ordered the people occupying them to leave and the houses closed on the ground that they were unfit for human occupation. The owner, who refused to make the houses better, may be proceeded against. Sanitary engineers can do a great deal to help along work of this kind by reporting cases they know of to the proper authorities.

DECIDE TO SINK MORE WELLS BEFORE GOING TO KOMOKA FOR SUPPLY

London.—After much discussion at a recently held meeting, the Public Utilities Commission decided to further experiment with wells before taking any other step to secure an adequate water supply for the city. Commissioner Mitchell objected that this commission had already been drilling holes for five years to no advantage. He urged that the only plan is to go to Komoka. No further delay should be allowed, he claimed.

The majority decided that it would be wiser to wait until the well on Front Street is finished before abandoning the proposition for the Komoka scheme. Manager Buchanan was also instructed to test the wells at the Ontario Hospital for the Insane to see if any appreciable supply can be secured there.

The question of installing some sort of a plant that will take out the iron was also discussed.

$42,000 FOR SCHOOL BASINS

Toronto.—Administrator Pearse announces that it will cost the Board of Education some $42,000 to comply with Dr. Hastings' wishes in having basins installed in the schools, including the initial outlay of soap and paper towels.

T. E. B. REPRESENTATIVES TAKE TO THE ROAD

Four representatives of the Trade Extension Bureau of United States have taken to the road to assist the plumbing and heating contractor, and every other industry to which the benefit of their services can be continued.

MONCTON PLUMBERS' SOCIETY IN REFURNISHED QUARTERS

Moncton, N.B.—The Moncton Society of Domestic Sanitary and Heating Engineers have had their room refurnished and would solicit from the trade catalogues, circulars, prices and discounts pertaining to their various lines, same to be filed in their information bureau. Address Room 5, Barker Building, Lutz Street, Moncton, N.B.

NEW WATER SYSTEM IN 1921

Port Credit.—By a unanimous vote the Port Credit Council decided to submit a by-law to the ratepayers for their endorsement of the proposed waterworks system some time next month. The exact date will be determined as soon as the by-law has been prepared and ratified at the next meeting of the council. But construction work on the system, if the vote is favorable, will not be undertaken until 1921.

COUNCIL DECIDES TO BUILD SEWERS

Port Hope.—Communications were received from the Board of Health recommending the construction of sewers on Ontario Street and Dorset Street East. A petition was presented more than a year ago and the residents are desirous that no further delays should occur.

The council decided to proceed with the work at once and notice was given of a by-law to borrow money for the construction of these sewers.

RESIDENTS FAVOR INSTALLATION OF SYSTEM FOR DISTRICT

Long Branch.—A strong agitation is going on among the residents to have a separate waterworks system installed in the district at the earliest possible opportunity. Some time ago an attempt was made to secure an agreement for a water supply from New Toronto. Now a number of residents believe that the district could supply its own water more cheaply. The matter will be strongly urged on the Etobicoke Council to take action on a new independent waterworks system next year.

LONDON HEALTH BOARD IS ACTIVE

London, Ont.—The Board of Health fired the opening gun in its campaign to clean up local eating places this week when the Luo Yon Cafe, operated by Chinese, was ordered closed permanently on the ground that it was insanitary. A number of other eating places have been inspected recently and some radical changes ordered in connection with their equipment. The board is determined that the kitchens and eating rooms be kept clean and sanitary or they will order them closed. The sanitary and heating engineers of the city are strongly endorsing the move.

Catalogues and Booklets

"REGO" WELDING AND CUTTING APPARATUS

The Bastian-Blessing Co., West Austin Ave., at La Salle St., Chicago, Ill., have just received off the press their new catalog, No. 20, descriptive of the "Rego Welding and Cutting Equipment." The catalog which is well illustrated shows the various styles of torches and cutting apparatus manufactured by this firm.

The makers point out that the Rego apparatus, while reasonably priced, does not, however, compete with cheap equipment. It is essentially a quality line and all the torches and regulators illustrated have been examined and approved by Underwriters Laboratories and National Board of Fire Underwriters.

The torches and cutting apparatus listed are suitable for all different classes of sheet metal work, and for plumbers and tinsmiths, auto repair work and for jewelry manufacturing and repairs, and for use with oxygen and acetylene, hydrogen or any kind of compressed combustible gas as well as natural gas.

The "Rego" principle is said to eliminate "flashback" under all operating conditions. A few of the "Rego" details claimed are: one-piece nickel-copper tip; renewable mixing chamber; all valves outside; long leverage on oxygen control; positive locking device operated without strain; no flashback; economy; sturdy construction; simplicity; balance pressures; soft welding flame.

The special features of the "Rego" diaphragm regulator are fully described and illustrated with diagram.

An eight-page booklet, entitled, "A New Principle in Welding and Cutting Apparatus," is enclosed with catalog.

Each article listed is guaranteed by the makers who have twelve years' gas apparatus manufacturing experience. Catalog will be mailed upon request.

ALUMINUM APPLICATIONS

The British Aluminum Co., Ltd., 265 Adelaide St. W., Toronto, Ont., have issued a booklet entitled "Aluminum Applications," showing a few of the many uses of aluminum. Some of the uses for this metal as illustrated are, automotive work and castings, aeroplane and engine construction. public passenger and commercial service vehicles, storage vats for nearly every industry, electric work of all descriptions, culinary utensils of every kind, bathroom fittings, and there is hardly an industry that does not find a use for aluminum in some shape or form.

The British Aluminum Co., Ltd., with head offices in London, Eng., have reduction works in Scotland and Norway, with mills in England, Scotland and Ireland. The New York office is 165 Broadway, and the company have branches and agents all over the world.

Aluminum publications are published by them dealing with different industries and those interested in the metal are invited to write or call at the Toronto office.

"MAPLE LEAF" STOVES AND FURNACES

A new catalog, No. 26, of the "Maple Leaf" line of ranges, heaters and furnaces manufactured by the Beach Foundry, Ltd., Ottawa, Ont., is just off the press.

The firm draw attention to the new lines, the "Falcon" and "Emblem" ranges, and the combined heater and cook stove under the name of the "Composite."

The Composite has proved a popular seller and is much in demand for flats and houses, where space is limited.

Besides the different ranges and cook stoves, the various styles of Quebec heaters, with or without grates, and with extension tops, are featured, and Shanty steel ranges and camp heaters are also manufactured and listed.

The Beach Foundry are makers of four types of furnaces for coal and wood, and the usual lines of cauldrons, kettles, feed cookers, registers, etc., are listed and shown.

The catalog is well printed and special features are the lists for ordering repairs and the instructions and directions for setting up and operating stoves and ranges and showing common faults and how to correct them.

Stove dealers are invited to write for a copy of this catalog.

CANNON PUMP OILERS

A new catalog has just been issued by the Cannon Oiler Co., Keithsburg, Ill., who claim to be the largest exclusive pump oiler manufacturers in the world.

The Canon pump oiler is said to be the only oiler having a complete force pump attachment without the use of any packing nuts, both valves being separate from the plunger. The main features that the makers draw attention to are: 1st, safety—it pumps oil at any angle and the long spout type for overhead work will pump oil 22 feet straight up, and operator does not need to work over a dangerous revolving shaft or pulley and it also eliminates the well-known hazard of a slipping ladder on a greasy floor; 2nd, convenience—it forces oil anywhere and spout is never clogged up; 3rd, economy—as much as is wanted can be pumped, a drop or a spoonful; 4th, speed—it delivers oil instantaneously.

The different types, upright and automotive style are shown in the various sizes and construction is described and illustrated.

Cannon Oilers are fully guaranteed. Each one is tested under working conditions. Catalog will be mailed on request to the makers.

The St. Lawrence Combination

—and 100,000 Stationary Tub

Things never appeared rosier, from the standpoint of sales, for sanitary engineers than to-day. Take Stationary Tubs, for instance; it is debatable which is the biggest inducement to Canadian women in house-hunting to-day—Stationary Tubs or clothes closets. There is no use disputing (with a woman) the importance of closets; neither is there much use attempting to sell or rent to her a house or apartment without Stationary Tubs.

And because this has not been fully appreciated in the past, and has got to be now, there are unlimited opportunities to sell St. Lawrence Combinations. Opportunity right now, with still greater opportunities when the inevitable equalizing of supply and demand for houses and apartments takes place.

Opportunities for Sales Were Never Better

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

Labor-Saving Features That Make Sales

eeded—They're Indispensable!

These opportunities do not always seek the sanitary engineer at his shop or office. Like all the other good things in life and business, they require effort to obtain. There is no dazzling future ahead of the man who waits for the business to come to him.

But there are excellent opportunities now for the man who goes after the customers, sets their minds to thinking of bath-tubs, stationary tubs, or whatever else he knows they need. Arouse the desire and it spreads like contagion.

The sanitary engineer who applies selling effort now will be in the public confidence and have his business firmly established and ready for the undoubted building expansion whenever it may come.

List Your Prospects and Sell Each One

Mfg. Company, Limited

Halifax Office:
McCURDY BLDG., HOLLIS ST.

Head Office:
ROYAL BANK BLDG., TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

Labor-Saving Devices in Farm Homes

LONDON, ONT.—Of special interest to those in the trade was an address delivered by Miss Ethel M. Chapman, of Farmers' Magazine at the annual convention of the Women's Institutes of Western Ontario here this week. More than three hundred women, all of them leaders in the Women's Institutes of the various rural communities, heard with keen interest Miss Chapman's instructive advice on the introduction of labor-saving devices in the farm-houses.

"Are we losing sight of the individual woman in the whole-country idea?" asked the speaker. "Shouldn't we, among other things, remember that the average farm woman has altogether too much to do? (Applause.) While we are getting all sorts of power for all the outside work of the farm, the home is still being run on woman power, and that is, in the end, the most expensive power of all, because it cannot be replaced. While the city woman is getting everything done for her by mechanical devices, the farm woman is still drudging away. Why, it is really a fact that she is an economic asset on the farm, where she may not be any place else. While the farmer himself is busy installing machinery and power to carry on his end of farm toil, the housewife is doing the same tasks in the same way as they were done thousands of years ago.

"We must have educational campaigns throughout our townships so that our farm women will learn to make use of the improvements of the day, so that our farm men will recognize their importance in farm life. The procuring of demonstrations of labor-saving devices would be simple, for manufacturers would fall over themselves to get the chance to show their wares.

"The most important thing to get into a farm house is running water. If there is a power plant already installed on the farm operating outside machinery, this is simple. But the people of the country should not forget that in many districts there is a great amount of water power going to waste. A simple system is the piping of a spring to the house, and then, if the pressure is strong enough, running a washing machine, or pumping water upstairs by means of water power. Water power may also be utilized in a larger way to generate electricity. A farmer would not let twenty or thirty horses run loose in his fields without harnessing them, but often he lets thirty horsepower flow through his land unstirred.

"For farms where the introduction of electric or water power is impossible, there is always the hand washing machine to be considered, the hand vacuum cleaner, the mop wringer, etc. A dinner wagon saves steps in the serving of meals. Sinks and tables should be at the proper height and unnecessary steps should be done away with.

Heating Trades Stimulated

THE approach of cold weather has provided a stimulant to the heating trades, particularly in Eastern Canada, where the weather to date has been milder than the West. Orders for stoves and furnaces have been received by manufacturers in large numbers recently. This fact was confirmed by Sanitary Engineer in discussing the situation with Messrs. Turner, McClary Mfg. Co., Flack, Thos. Davidson & Co.; Carson, Burrough, Stewart & Milne.

"I think I have spent three-quarters of my time the last few days in looking after new orders and explaining why we could not fill others immediately," said W. G. Scott, Pease Heating Co., Toronto.

Evidence of the great demand for furnace installation and repairs is found in the fact that this firm in a recent week used 4 tons of metal in making furnace pipes whereas the normal demand is for 1½ tons of metal per week. Last month this firm did $10,000 more business than in the same month one year ago.

The fall business of most heating concerns has been unparalleled, and the reason is given that the conservation and economy practised during the war years is now giving way to the expenditure of money on such necessaries. It is stated that last year many people put off buying heating equipment or repairs hoping for lower prices this year. This tendency has not materialized, however, largely due to continued high labor costs, and much of this business cannot be postponed any longer.

TO PROTECT THE HONEST DEBTOR

(Continued from page 16)

the incentive to commit fraud and companies, building societies and saving banks, which are still dealt with under the Wind-Up Act.

In framing the new act the advantages and benefits of the old Assignment Acts were recognized, and many of the disadvantages of the old Winding-Up Act are expected to be abolished. Mr. Clarkson explained the provisions of the act regarding ranking of creditors and the order of payment and said that the act now permits an honest or unfortunate debtor securing a discharge, while a dishonest one cannot secure one. Thus the incentive to commit fraud and compound with a creditor for the best possible rate is withdrawn.

"It will be seen," he stated, "that the Bankruptcy Act will be of benefit in that the bases for the winding up of estates throughout Canada are standardized by it, and that the different Assignment Acts are superseded. It also means that the unfair preferences that have existed in some of the provinces will be done away with, and unwilling debtors will be forced to turn their property over to their creditors. The honest debtor is protected throughout. If the new act is to be successful and to operate economically, that can only be done when the procedure under it is held simple, and formalities are not allowed to surround it, as has happened in the operation of the Winding-Up Act."

UNCOVERED FURNACE PIPES

(Continued from page 18)

Steam was condensed in the drums by the cooling action of the air surrounding them and was discharged through water seals connected to each drum. These seals were U-tubes made of pipe, and were long enough to contain a water head of four feet. As the steam condensed the seals became filled with water; the condensate then dripped over into receivers as fast as it accumulated. The water in the seals cooled to room temperature before it dripped into the receivers so that evaporation was not influenced by the heat of the water in the receivers. Each receiver was mounted on a small weighing scales accurate to one-hundredth pound.

A mercury manometer was used to obtain the pressure of the steam in the central header, and since the temperature of the steam for any known pressure may be taken directly from steam tables, it was possible to determine the temperature of the medium within the drum with great accuracy. A pressure regulator in the steam supply line held the pressure constant within a small fraction of a pound, about 0.2 pound being the variation during a test; as the temperature change for the pressure variation was negligible, the temperatures were uniform and accurate within one degree.

No thermometers were required for determining the steam temperature, but one was used in each drum at the point of outlet of the condensate to detect the presence of air in the drums. The readings of these thermometers decreased upon the formation of air pockets in the lower part of the drums or in the connected piping. Air could be blown out of small petcocks located near the thermometers in the piping. No effects were noticeable when steam was allowed to escape for short periods from these petcocks, which could therefore be opened during a test to discharge any small accumulation of air.

(To be continued)

NEW SEWER FOR BUSINESS SECTION

Montreal.—For several weeks workmen have been engaged in the construction of a special sewer to take care of drainage from the stores situated on part of St. Catherine Street West, Montreal. The previous sewer was not of sufficient depth, but the new one will take off the accumulated water from such cellars as are more than average depth.

Building Outlook is Brighter

Conditions Still Unfavorable to Building on Large Scale, But Change Expected—Look for Movement Toward Normal Costs During Winter and Spring

As was anticipated in a review of the building trade in these columns recently, the total of building permits issued throughout the Dominion during the month of September has declined from the net returns for the previous month. This can be directly attributed to the continued unfavorable conditions existing in the building trades, together with the anticipation of a movement toward normal during the coming winter and spring. Only necessary building is under way at the present time, and many millions of dollars' worth of contemplated construction has been held over indefinitely.

The value of building permits issued during the past month reached a total of $8,299,483, as compared with $9,351,110 for the month of August, and $11,880,072 for the month of September, 1919. The present situation is in sharp contrast to conditions existing a year ago. In September, 1919, the largest total for the year was piled up. In fact building in Canada did not get fairly under way until that month, and all through the fall there was a fair degree of activity. Building during the past few months has been largely confined to construction that could not be conveniently delayed. The immediate need, while still pressing, is not of such a nature that it must be undertaken notwithstanding the high costs of construction.

Building totals for the year, however, continue well in advance of the returns for the corresponding period of last year, this year's total being $88,799,001 as against $58,337,737, or an increase of $30,461,264. There has been a decided decline in the East, the figures for the twenty-five eastern cities being $6,779,062, as compared with $10,126,898 last year. In the West the returns do not vary to any considerable degree, the latest figures being $1,520,421 as against $1,753,174.

Toronto's total of $2,180,000 is in excess of the returns for the fifteen cities of the West, but there is a slight decline of $210,242 from the returns of last year.

Montreal shows an increase from $1,059,976 to $1,350,740. In the case of Hamilton, rather a drastic decline is recorded from $1,461,036 last year to $328,400. Port Arthur, too, has suffered a slump from $1,028,500 to $21,396. Winnipeg leads in the West with $595,800 as against $379,266 for the city of Vancouver.

Among the larger permits issued were the following: Victoria, dwelling, $40,000; Sydney, bank building, $58,000; Montreal, factory, $254,000; school, $258,000; school, $222,400; Galt grant stand, $18,000; bread factory, $34,500. Guelph, factory, $16,000. Hamilton, addition to foundry, $75,000. Peterboro, addition to mill, $12,000. Port Arthur, transformer house for Hydro-Electric Commission, $15,000. Stratford, addition to factory, $20,000. Winnipeg, medical college, University of Manitoba, $172,000; theatre, $250,000; filling station, $20,000; factory, $13,000. Regina, post office, $30,000. Sherbrooke, store, $35,000; hospital, $600,000. Calgary, telephone station, $25,000. Lethbridge, bank building, $58,000. Saskatoon, garage, $14,500.

BUILDING PERMITS ISSUED IN SEPTEMBER

Eastern Cities.

Maritimes—	Sept., 1920	Sept., 1919	Change	9 mos. 1920	9 mos. 1919	Change
Halifax	$ 80,080	$ 802,690—	$ 722,610	$ 2,954,933	$ 3,210,323—	$ 255,390
Moncton	50,915	113,040—	62,125	1,076,350	1,970,521—	894,171
Sydney	108,070	71,520+	36,550	662,362	577,545+	84,817
Quebec—						
Montreal	$ 1,350,740	$ 1,050,976+	$ 299,764	$12,347,119	$ 6,964,644+	$ 5,382,475
Quebec	174,290	282,565—	108,275	1,988,645	1,352,944+	635,701
Sherbrooke	688,600	246,000+	442,600	2,938,808	745,850+	2,192,958
Westmount	119,200	103,710+	15,490	1,003,445	619,376+	384,069
Ontario—						
Brantford	$ 50,275	$ 287,665—	$ 237,390	$ 702,188	$ 856,430—	$ 154,242
Ft. William	10,025	23,250—	13,225	504,485	566,105—	61,620
Galt	63,850	57,255+	6,595	287,260	303,101—	15,841
Guelph	35,585	116,460—	80,875	410,498	495,177—	84,679
Hamilton	328,400	1,461,036—	1,132,636	4,129,287	3,660,495+	468,792
Kingston	6,970	43,745—	36,775	495,241	469,917+	25,324
London	273,175	149,210+	123,965	1,522,515	1,735,865—	213,350
Ottawa	312,255	487,860—	175,605	2,428,923	2,561,747—	132,824
Peterborough	20,685	11,805+	8,880	219,250	88,795+	130,455
Port Arthur	21,396	1,028,500—	1,007,104	195,585	1,662,698—	1,467,113
St. Catharines	58,668	253,886—	195,218	726,460	676,240+	50,220
St. Thomas	27,735	42,715—	14,980	238,391	194,240+	44,151
Stratford	42,705	122,808—	80,103	399,095	258,955+	140,140
Toronto	2,180,000	2,390,242—	210,242	19,966,340	12,752,830+	7,213,510
Welland	19,600	14,250+	5,350	272,985	284,521—	11,536
Windsor	373,530	444,965—	71,435	4,190,830	1,811,310+	2,379,520
Woodstock	6,513	13,795—	7,282	239,942	91,283+	148,659
York Township	375,800	506,950—	131,150	3,720,750	3,219,225+	501,525
Total 25 E. Cities.	$ 6,779,062	$10,126,898—	$3,347,836	$63,621,687	$47,130,137+	$16,491,550
St. John	108,700					
Chatham	350,194					

Western Cities.

Manitoba—						
Brandon	$ 7,100	$ 26,615—	$ 19,515	$ 121,750	$ 78,077+	$ 43,673
St. Boniface	41,195	24,625+	16,570	422,115	272,985+	149,130
Winnipeg	595,800	624,450—	28,650	7,687,750	2,115,900+	5,571,850
Alberta—						
Calgary	$ 96,600	$ 83,500+	$ 13,100	$ 2,114,200	$ 1,941,800+	$ 172,400
Edmonton	41,925	29,025+	12,900	3,094,275	758,000+	2,336,275
Lethbridge	64,900	26,840+	38,060	226,975	146,820+	80,155
Medicine Hat	8,000	450+	7,550	54,481	237,723—	183,242
Saskatchewan—						
Moose Jaw	$ 32,160	$ 78,600—	$ 46,440	$ 1,394,160	$ 464,095+	$ 930,065
Prince Albert	13,425	11,770+	1,655	394,630	223,101+	171,529
Regina	141,100	224,875—	83,775	2,380,720	1,362,020+	1,018,700
Saskatoon	28,500	292,495—	263,995	1,030,640	1,313,320—	282,680
Weyburn	1,800	.....+	1,800	2,375,866	4,070+	2,371,796
Yorkton	14,300	27,485—	13,185	344,895	334,000+	10,895
British Columbia—						
Vancouver	$ 379,266	$ 203,677+	$ 175,589	$ 2,982,060	$ 1,601,348+	$ 1,380,712
Victoria	54,350	98,767—	44,417	552,797	354,341+	198,456
Total 15 W. Cities.	$ 1,520,421	$ 1,753,174—	$ 232,753	$25,177,314	$11,207,600+	$13,969,714
Gr. Total 40 Cities.	$ 8,299,483	$11,880,072—	$3,580,589	$88,799,001	$58,337,737+	$30,461,264

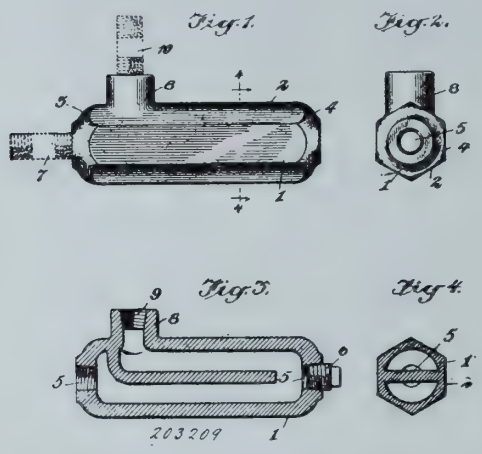
NEW CANADIAN PATENTS

(Issued for Plumbing and Heating Goods)

NO. 203209 WATER HEATER

Charles Dargent, New York City, New York, U.S.A.

A water heater for furnaces comprising a hollow body having a circular bore and a hexagon-shaped outer surface, a dividing plate or tongue arranged centrally of said bore and extending from near one end to near the opposite end, said last-mentioned end being bent so as to merge into the side of the body, said body being provided with an opening adjacent the bent end of said tongue, and a second opening at the extreme end of said body opposite bent section of the



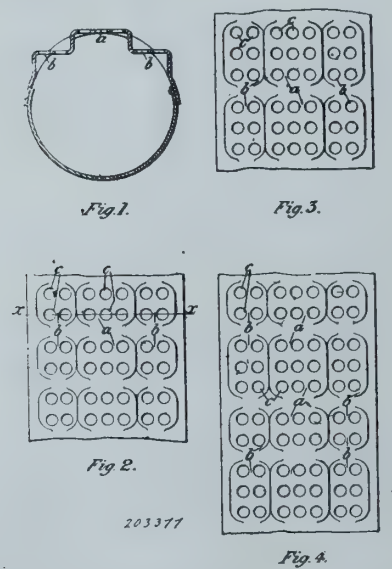
tongue whereby a free entrance and exit of water is provided adjacent one end so that a circulation in contact with the entire body is provided for, preventing overheating of any part of the body and for the absorption of the heat units.

* * *

NO. 203377 WATER TUBE BOILER AND WATER HEATER

The John Thompson Water Tube Boilers, Limited, assignee of Vernon Smith, both of Wolverhampton, Stafford, Eng.

In a water tube boiler, prepared surfaces to receive the tube ends, said surfaces arranged in three tiers only, of which the two outer tiers are substantially in the same plane, and



the inner tier in a plane more remote from the centre of the drum, each tier being of a width transversely of the drum to receive two or more tubes of each transverse set of tubes, and transverse portions of the drum left of the original cylindrical shape, dividing the tiers into formations, of which each formation is of a length, measured longitudinally of the drum to receive tubes of two or more sets of tubes.

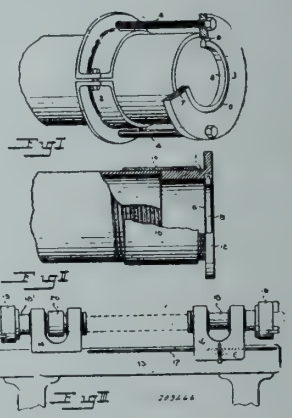
* * *

NO. 203466 PROCESS OF LINING METAL PIPES

Aaron J. Israel, Johannesburg, Transvaal, South Africa.

The process of lining metal pipes with cementitious material, which consists in rotating the pipe at relatively low speed, introducing to the interior of the pipe a mixture of cementitious material and water of such consistency as to readily flow, the rotation of the pipe at low speed causing the cementitious material to be spread over the interior of the pipe, and then rotating the pipe at relatively high speed removing the surplus water and setting the lining.

The process of lining metal pipes with cementitious material, which consists in partially covering the ends of the pipe to be lined, rotating the pipe at relatively low speed, introducing to the interior of the pipe a mixture of cementitious material and water of such consistency as to readily flow, the rotation of the pipe at low speed causing the cementitious material to be spread over the interior of the pipe, then



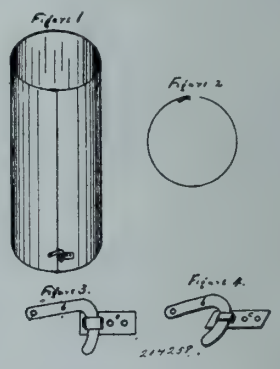
rotating the pipe at relatively high speed to accumulate the surplus water in the interior of the pipe, stopping the rotation of the pipe to permit of the removal of the accumulated water, and then resuming the rotation of the pipe at relatively high speed to set the lining.

* * *

NO. 214258 SHEET METAL PIPE

George Brown Barclay, Calgary, Alberta, Canada.

In combination with a pipe section made of sheet iron, tin or other flexible metal, the edges of which are adapted to be brought together to form a close or tight joint or seam by means of a folded or doubled edge with which the oppo-



site edge is adapted to engage, a device for holding the said edges together or disengaging them composed of the parts (b) and (c) secured to the said pipe section near its opposite edges which said parts are adapted to engage with each other with the effect of a cam substantially as set forth.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

THE markets on plumbing and steamfitting supplies are holding fairly firmly on the whole.

Lead products have easier tendencies and it is expected that lead pipe may go lower. Some changes have been made in prices of scrap metals which show a decline.

Prices of cotton waste are likely to be easier, it is thought, but the raw cotton market has shown a firmer tone again.

Ingot metals are dull with a few changes in prices, and spelter and copper are weak.

Some changes have been made in pipe fitting discounts and though supplies are short an easier tone is manifest.

An improvement is believed to be imminent in wrought pipe and in the sheet situation, but supplies of both are very small with stocks low.

Canada plate is still a very scarce article, with little improvement expected for some time.

Radiators are in good demand, and the change in weather conditions is already causing a run on stoves and heaters. Manufacturers anticipate that stocks in hand of heating stoves will not last very long once the rush starts.

Sales on enamelled ware have slowed down a little.

Business it is stated is fair, but could stand improvement.

MONTREAL

MONTREAL, October 30.—Plumbing and heating supply houses are quite busy on certain lines. Radiators and radiator fittings and valves are actively selling, while pipe and general fittings are still big sellers. Both pipe and fitting stocks are expected to improve in the next few weeks, cast fittings being already in fairly good supply. The two active sellers in galvanized pipe, half and three-quarter inch, still are short of the requirements. Canada plate is as scarce as ever, as are made-up stove pipes and elbows. Some easing of prices on cast fittings is noted in a change of discounts. Lead pipe will perhaps be marked down in the immediate future. Solder, on the other hand, might advance. Old material is easier and some lines such as copper, old scrap steel and iron are lower. A lowering of oakum and waste prices will probably come soon. Iron and steel bar supplies are freer. The state of trade is fair, though some supply houses would welcome a greater volume of business. Enamelled ware prices are held unchanged, stocks being satisfactory.

Canada Plate Is Still Hopeless

Montreal.

CANADA PLATE.—Prices are strictly nominal on such stocks as are available. The fact seems to be established that there will be no improvement of consequence this fall. The trade is forced to cut up large sheets to meet requirements, and with the advent of the cold spell there will be no possibility of improvement; hardship will probably result from the shortage, in some communities at least.

Iron Pipe Freer in Near Future

Montreal.

IRON PIPE.—Jobbers and plumbers are buying considerable quantities of pipe, particularly of small sizes. The tax is great upon manufacturers' stocks, and for some weeks to come it is expected that to lay aside any surplus will be impossible. Demand has been particularly heavy for ½-inch and ¾-inch sizes and prices are unchanged, No. 46 list still applying.

Standard Buttweld Pipe
List No. 46
Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	23.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.75	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
2	$32.01	$38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2.66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4.39	4.39	5.21

Oakum Prices Ought to Descend

Montreal.

OAKUM.—While there has been no revision in the price of oakum, there is reason to anticipate a change to lower levels in the very near future. The basis of $9.50 will probably be reduced somewhat ere long.

Some Reductions on Various Fittings

Montreal.

FITTINGS.—Some fittings have been revised downward, cast unions, couplings, etc., being marked slightly lower. There has been a real shortage of malleable fittings for a long time. Sanitary Engineer understands that until the turn of the year there is little likelihood of malleables being free or in excess supply. One of the difficulties has been that of the lack of machinery for tapping, but this will be overcome in the near future. On the other hand there is an ample supply at present of cast fittings, and all sizes may be supplied up to 6 inch in both 45 and 90 degrees, tees and elbows included.

PIPE FITTINGS

Cast iron fittings	Plus 7½%
Plugs	Less 18%
Bushings	Less 18%
Unions, black	35%
Do., galv.	40%
Dart unions, ¼-in. to 2-in.	Plus 35% and 10%
Do., 2½-in. and larger	8%
Nipples, blk., up to 4-in.,	50%
Do., gal., up to 4-in.	40%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4 in. and under	20%
Couplings, 4½" and larger	Net list

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C.	0 20	0 30

Demands Will Exceed Stove Pipe Supplies

Montreal.

STOVE PIPE, ELBOWS. — Patent stove pipe stocks are severely taxed, the available quantities of Canada plates being limited. It is possible that there will be more or less hardship because of this condition. Prices on both pipes and elbows are bound to rule strong.

Prices Unchanged on Compression Work

Montreal.

COMPRESSION WORK, VALVES.—The demand for brass valves has been very heavy of late and supplies are adequate to take care of the demand. Prices remain unchanged although there may be more favorable basis in the not distant future. General radiator valves are actively in demand.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Active Radiator Sales Still Made

Montreal.

RADIATORS.—The sale for standard radiators continues brisk and manufacturers are very busy supplying the needs of the trade. The market continues rather firm, and in view of the fact that there is little or no surplus, there is unlikely to be an easing of the price basis for some time to come.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 2 3in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

Vitrified Pipe Enjoys Fair Sale

Montreal.

VITRIFIED PIPE.—This product is held in fair supply. Sales are moderately fair, but the season when this is extensively used is drawing to a close. The price basis is firm and unchanged, recent freight advances having been a factor in the maintenance of the market. Prices on straight pipe and fittings are as follows, with discounts available for those wanting car lots.

Vitrified Sewer Pipe	4 in.	5-6 in.	8 in.	9 in.	10 in.	12-in.	15 in.
Straight pipes, per foot	$0.30	$0.45	$0.70	$0.85	$1.05	$1.35	$1.80
Single junctions, 3 feet	....	2.25	3.50	4.25	....	....	....
Do., 2 and 2½ feet	1.35	1.80	3.15	3.85	4.75	6.10	8.10
Double junctions	1.80	2.70	4.90	6.30	7.35	10.80	14.40
Curves—⅛ths	1.20	1.80	2.80	3.60	4.20	5.40	7.20
Bends—¼	1.20	1.80	3.15	4.05	4.75	6.10	14.40
Traps	3.00	4.00	7.00	9.00	10.50	18.00	....
Reducers and Increasers	....	1.80	2.80	3.40	4.20	6.10	8.10
Stoppers—each	0.15	0.23	0.35	0.45	0.53	0.68	0.90
Slants—each	0.90	1.35	2.10	2.55	3.15	4.05	5.40
Channel Pipes, per foot	0.24	0.36	0.56	0.72	0.84	1.08	1.44
Round Chimney Vents, per foot	0.30	0.45	0.70	0.85	1.05	1.35	1.80
Weight per foot—standard pipes	10	12	23	28	33	45	60
Weight per foot—double strength	..	16	..	..	..	..	70

Soil Pipe Selling; Stocks Are Fair

Montreal.

SOIL PIPE.—Medium and extra heavy soil pipe in 2-inch, 3-inch, 5-inch diameters, is now selling at list plus 5 per cent., while 8-inch remains unchanged at list plus 20 per cent. There is a fairly heavy demand from the trade at present.

Soil Pipe (medium and extra heavy), net.
Do., 2, 3, 5, and 6-in., add 5% to list.
Do., 8 inch, add 20% to list.
Fittings, 4 in., net list.
Do., 2 to 6 in., 20%.
8 inch pipe and fittings, add 20% to the list.

No Changes Made on Range Boiler List

Montreal.

RANGE BOILERS.—The prices on standard and extra heavy range boilers remain unchanged with 30-gallon standard selling at $15 each, and extra heavy at $18. The demand is continuing active.

Range Boilers—	Standard	Ex.Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Lead Pipe May be Lower; Solder Firmer

Montreal.

LEAD PRODUCTS.—The plumbing demand for lead pipe, lead traps and bends, etc., has been quite active of late and it is expected to be thus for a few weeks yet. Prices of $17 and $18 per 100 pounds respectively on lead pipe and waste are still in effect, although some expect that there will be a change downward in the not distant future. Solder prices are considered low at the present levels and some anticipate there may be a slight advance.

Lead pipe, per 100 lbs.	....	17 00
Lead waste, per 100 lbs.	....	18 00
Note—Lead pipe is subject to a discount of 10%.		
Lead traps and bends	List plus 30%	
Lead wool, lb.	....	0 15
Lead sheets, 2½ lbs.	....	0 13
Lead sheets, 3 to 3½ lbs. sq. ft., lb	....	0 12¼
Do., 4 to 8 lbs., sq. ft.	....	0 12
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.		
Solder, guaranteed, lb.	....	0 31½
Solder, strictly, lb.	....	0 29½
Solder, commercial, lb.	....	0 26½
Solder, wiping, lb.	....	0 26¼
Wire solder—		
40-60	....	0 33¾
45-55	....	0 36
50-50	....	0 38½
Zinc sheets, casks	....	0 16½
Do., broken lots	....	0 17

Galvanized Sheets Promise to be Freer

Montreal.

SHEETS AND PLATES.—Supplies of galvanized sheets promise to improve considerably in the near future. Importers have been receiving supplies from abroad for some weeks, and while the quantities have been limited there has been a fairly improved tonnage available. As improvement is manifest prices will again ease off, and while premiums are still being paid for supplies, Sanitary Engineer understands changes for the better on supplies from both England and the States will soon be manifest.

BLACK SHEETS—

10 gauge	9 25
12 gauge	9 30
14 gauge	9 35
16 gauge	9 45
18-20 gauge	9 90
22-24 gauge	9 95
26 gauge	10 00
28 gauge	10 10

GALVANIZED SHEETS—

U.S. Standard—	
10¾ gauge	13 80
28 gauge	13 30
26 gauge	12 35
22 to 24 gauge	12 10
20 gauge	11 85
18 gauge	11 85
16 gauge	11 60
14 gauge	11 35
12 gauge	11 20
English Standard—	
28 gauge	13 00 — 13 50
26 gauge	12 75 — 13 25
24 gauge	12 15 — 12 65
22 gauge	11 80 — 12 30
18 and 20 gauge	11 35 — 11 85

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Sales Every Day of Corrugated Sheets

Montreal.

CORRUGATED IRON.—There is a fairly steady demand for these, and supplies are going to the trade from jobbers every day. The tendencies are somewhat better. If the promised improvement in sheet deliveries manifests itself soon there will be an easing of prices on the

corrugated sheets, but as yet the following prices are effective here:

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	12 00
No. 26 gauge	12 75
No. 24 gauge	18 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Discounts on Elbows Remain Unaltered

Montreal.

PIPE ELBOWS.—Prices are steady and unchanged on crimped and round elbows, the list prices still being subject to 50 per cent. advance. The trade is buying frequently but in small quantities anticipating that any change will be for the better.

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Trough a Good Seller But Is Held Unchanged

Montreal.

TROUGH, CONDUCTORS.—That the trade is doing a fair amount of business right along is evidenced from the fact that orders are being received every day. These, while not for extensive quantities, are totaling well, and the market remains steady and prices unchanged.

PIPE (Conductor)

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in	$6 90	15-in	$12 50
10-in	7 70	18-in	16 00
12-in	9 10		

Add 25% to the above list.

F.O.B. Toronto, Oshawa, Ottawa.

Old Copper and Steel Are Lower

Montreal.

OLD MATERIAL.—Prices have been reduced on light and heavy copper, on melting steel and on boiler plate. This is due to the slackness of orders, mills not wanting to buy extensively at present, and when they do they will not pay fancy prices. There is not a great deal of promise at the present time that the market will hold steady, reductions to lower levels on most lines being probable. Little interest is being taken by the big buyers in country scrap stocks.

Dealer's Buying Prices

Automobile tires		0 01
Yellow brass	0 07	0 08
Red brass		0 15½
Light brass		0 05½
Scrap zinc		0 05¼
Lead, heavy	0 05	0 06
Lead, tea		0 03½
Light copper		0 11
Heavy copper		0 13
Wrought iron, No. 1, per gr. ton	19 00	20 00
Malleable scrap (ton)		22 00
Pipe scrap (ton)		12 00
Stove plate, per ton		30 00
Heavy melting steel		18 00
No. 2 busheling	10 00	12 00
Boiler plate		16 00

Some Improvement Probable on Bars

Montreal.

IRON AND STEEL.—Prices are still steady, but there is some improvement in stocks, jobbers stating that they have less difficulty in obtaining their wants from the rolling mills. As improvement comes there may be some easing of the basis; meanwhile this is a matter for future decision.

IRON AND STEEL.

	Per 100 lbs.
Common bar iron	5 15
Refined iron	6 15
Mild steel	5 30
Band steel	5 30
Iron finish machinery steel	5 35
Sleigh shoe steel	5 30
Tire steel	5 50
Toe calk steel	6 20
Spring steel	6 00
Harrow tooth steel	5 45
Single reeled machinery steel	6 80
Norway iron	15 00
Mining tool steel, per lb.	0 24½

NOTE—3-16" and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

Sales Limited For Enamelware

Montreal.

ENAMELED WARE.—While there are fair stocks of enameled ware the demand is not very active, operations being somewhat restricted from a building standpoint. Prices are without change for the past two weeks, the following lists applying to this territory. It is improbable, unless something unforeseen occurs, that there will be any advances of price; declines might come a little later.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide			$40 75
Bath tubs, 5½ ft.			45 32
Lavatories—			
17 x 10" Apron F139 or P4045			12 15
18 x 24" Apron F154 or P3845 or P3847			18 70
18 x 21" Apron F169 or P4205			13 97
18 x 21" Roll Rim F197, F199 or P4655-6			12 21
17 x 19" Roll Rim F241 or P4345			9 95
Sinks, roll rim, 18 x 30 in.			18 26
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 94	$5 88	$5 83
18 x 30	6 82	7 18	6 71
20 x 30	7 81	7 75	7 70

Waste Will Be Lower May Not Be Immediate

Montreal.

COTTON WASTE.—With the cotton market unquestionably easier on many commodities, there is every reason to anticipate a fairly heavy decline on waste prices in the near future. Cotton twine, for instance, has declined in some instances about 25 per cent. from its high point, and there is reason to assume that waste will be lower. Latest advices to hand, however, indicate that price changes may not be made for several weeks. The trade is buying sparingly under these conditions.

WASTE	
Cream, Polishing	0 26
WHITE	
XXX	0 23
XX	0 21½
X	0 20
Japanese	0 17
XX, grad.	0 22½
XLCR	0 20
X Empire	0 18½
X Press	0 16½
XC	0 18½
COLORED	
No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0 10

Above lines subject to trade discount for quantity.

Ingots Are Steadier, But Trade Limited

Montreal.

INGOT METALS.—There has been little new in the situation. Tin and copper have fluctuated a great deal but some look for a cessation of the rather marked nervousness. Copper is still weak.

TIN.—London cables indicated an improvement in recent days, and prices are being quoted here around 50 cents per pound.

COPPER.—The arrival of discarded copper bands, used during the war, has had a lowering tendency and the product may be bought now at around 20-21 cents according to grade.

SPELTER.—This is a trifle easier, quotations averaging from 9 to 9½ cents per pound.

ANTIMONY.—8¾ cents per pound is quoted. There is but limited demand for it.

ALUMINUM.—This is unchanged at 35 to 37 cents per pound.

LEAD.—The outlook suggests that there will be ample supply, but advices from abroad indicate that there will be little reduction of the basis for a least several weeks.

TORONTO

TORONTO, October 30.—Trade in heating installations, repair parts, etc., is active and prices on most plumbing and heating lines are remaining firm. The demand for radiators and range boilers is good, stocks of the latter being in fairly good supply though materials required in the manufacture of radiators are none too plentiful. The scarcity of most sizes of pipe continues and a lessened demand for pipe fittings is resulting. The demand for soil pipe and fittings is also a little lighter. Enamelware sales are in fair volume though the trade is showing no tendency toward heavy stocking.

Enamel Ware Quotations Unchanged

Toronto.

ENAMELWARE. — Jobbers report sales of enamelware goods to be fair, but with an apparent desire on the part of buyers to keep stocks in hand at the smallest possible margin. Prices are holding very firm and the likelihood of any price decline is regarded as small. Quotations are unchanged as follows:

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide	$40 75
Bath tubs, 5½ ft.	45 30
Lavatories—	
17x10" Apron F139 or P4045	12 25
18x24" Apron F154 or P3845 or P3847	18 70
18x21" Apron F169 or P4205	14 00
18x21" Roll Rim F197, F199 or P4655-6	12 20
17x19" Roll Rim, F241 or P4345	9 95
Sinks, roll rim, 18x30 in.	18 25

Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 95	$6 00	$5 85
18 x 30	6 85	7 15	6 70
20 x 30	7 80	7 75	7 70

Closet Bowl Prices Are Maintained

Toronto.

CLOSETS.—Sales of closet bowls and combinations are steady without being large. Stocks in hand are said to be ample and prices maintained. Quotations are given.

Closet, standard outfit	$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00
Do., wood strip seat and cover	3.75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Sheets and Plates; Deliveries Still Light

Toronto.

SHEETS, BLACK AND GALVANIZED.—In some quarters a little improvement in conditions is reported regarding deliveries of sheets, but the supply of the lighter gauges of galvanized sheets still remains very poor. The supplies of English sheets are expected to be affected by the coal strike over there, and if the strike is prolonged there will not be much hope of any relief in that direction. Cancellations are reported from Pittsburgh markets and it is expected that lower prices may prevail for sheets. Prices in this market are still largely nominal and as much as fifteen cents per pound is being asked and obtained in some places.

BLACK SHEETS

14 gauge	10 15
16 gauge	10 25
18-20 gauge	10 70
22-24 gauge	10 75
26 gauge	10 80
28 gauge	10 50
3-16 inch plate	7 00
¼-in. boiler plate	6 50

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier.	Apollo.
10¾ oz.	12 50	13 25
U.S. 28	12 70	12 85
U.S. 26	12 40	12 55
22 and 24	12 25	12 40
18 and 20	11 95	12 10
16	11 95	12 10
12 and 14	11 20	11 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Iron and Steel; Prices Maintained

Toronto.

IRON AND STEEL.—Prices are maintained on iron and steel angles and bars and present prices are expected to hold for the present. There is said to be an improvement in shipments from the mills with better transportation facilities noted. Latest quotations are as follows:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	$ 6 25
Common bar steel, ¼-in. and heavier	5 75
Common bar iron, 3-16 in. and lighter	6 25
Common bar iron, ¼ in. and heavier	5 75
Angle base	5 85
Horseshoe iron	6 00
Tire steel	5 95
Band steel	6 25
Spring steel	12 75
Mining drill steel	31 75
Sheet cast steel	....
Sleigh shoe steel	6 00
Norway iron	16 25
Toe caulk iron	6 70
Hoop steel	7 50

Shortage Existing in Corrugated Sheets

Toronto.

CORRUGATED SHEETS.—Prices on corrugated sheets are still very nominal, and though they are unchanged higher prices may be asked and obtained owing to the scarcity of the lighter gauges. Deliveries of these are still very poor.

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	12 00
No. 26 gauge	12 75
No. 24 gauge	18 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Soil Pipe and Fittings; Conditions Steady

Toronto.

SOIL PIPE AND FITTINGS.—No change has taken place in soil pipe or in soil pipe fittings. Prices are steady and unchanged. The demand has been good but is said to be lighter now. Quotations are the following:

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, add 10% to list.
4-inch, net list.
8 inch, add 20% to list.

FITTINGS—
2 to 6 inch fittings, 20% discount.

Compression Goods Firm and Unchanged

Toronto.

COMPRESSION GOODS.—No changes are reported on compression goods, valves and bibbs. Stocks are fairly plentiful, with no apparent shortage. Quotations on the better known lines are the following:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	list plus 20%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Improved Conditions in Pipe Supplies

Toronto.

STANDARD PIPE.—At the present time pipe of all descriptions, but especially the smaller sizes so much called for in the plumbing trade as ½ inch, ¾ inch and 1¼ inch, is very scarce, and is causing a great deal of inconvenience and delay in many jobs. Manufacturers, however report an improvement visible in conditions. Transportation is said to have improved to the extent of making supplies of skelp more available and the plants if improvements are maintained will be able to make much better deliveries. The trade generally, both jobbers and retailers, will be very pleased to see some improvement, but stocks are so depleted that it will be some considerable time before they could become normal again. Prices are unchanged as follows:

LIST NO. 46
Standard Buttweld Pipe

	Per 100 Ft. Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.05	107.37	.....	.....

Standard Lapweld Pipe

	Per 100 Ft. Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$ 38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2.66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4.39	4.39	5.21

Lessened Demand For Pipe Fittings

Toronto

PIPE FITTINGS.—Not much change has taken place in supplies of pipe fit-

tings. The shortage is not quite so acute as it was, but one jobber gave as his idea of this apparent improvement the statement that consumers, finding it impossible to obtain pipe, were not ordering the fittings, consequently stocks were heavier. Prices are unchanged as follows:

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	8%
Do., 2½-in. and larger	Plus 5%
Nipples, up to 4-in.	50%
Do., 4½-in. and larger	40%
Do., running thread, 4-in. and under	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Metallic Roofings; Supplies Scarce

Toronto.

METALLIC ROOFINGS.—Prices are still ruling very firmly on the various grades of metallic roofings and sidings. There is the same difficulty in getting supplies and light gauges of materials are very much below the demand. The strikes in Great Britain will tend to make matters worse as supplies from there were beginning to be heavier and an improvement in supplies from the Old Country was expected.

Radiator Demand Good; Prices Unchanged

Toronto.

RADIATORS.—There has been a very fair demand for various styles of radiators this season, and with materials none too plentiful stocks have been strained. No further change has taken place in prices, and discounts are the following:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

Range Boilers Unchanged; Supplies Proving Ample

Toronto.

RANGE BOILERS.—The demand for range boilers has been very fair. Supplies are said to be sufficient in spite of shortage of material. Manufacturers had made up these goods before the scarcity of material became so severe and had stocks of boilers on hand to meet the demand. There is no change in quotations.

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Supplies Scarce in Conductor Pipe, Trough

Toronto.

CONDUCTOR PIPE AND EAVES-TROUGHING.—The supply of these commodities is being held up on account of difficulty in obtaining supplies of materials. Quotations are unchanged as follows:

PIPE (Conductor)
Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in	$6 90	15-in	$12 50
10-in	7 70	18-in	16 00
12-in	9 10		

Add 25% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Corrugated Elbows Harder to Procure

Toronto.

CORRUGATED ELBOWS.—Like conductor pipe the supply of elbows is affected by the shortage of materials and difficulty is being experienced in filling orders. No changes are noted in prices and 50 per cent. above list is present quotation.

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Rope Prices Hold; Quieter Demand

Toronto.

ROPE.—Prices on rope are maintained at recent decline and no present change is expected.

Pure Manilla, base	0 33½
Beaver Manila, base	0 26
New Zealand hemp, base	0 26
Sisal, base	0 21½
Single lath yarn	0 21½
Double lath yarn	0 22

No Further Decline in Cotton Waste

Toronto

COTTON WASTE.—Conditions in the waste trade are reported to be steady with a fairly good demand. No further changes are announced in prices, and it is pointed out that the price of waste did not advance in the same proportion as did other cotton goods, and there is not likely to be the same decline as has been experienced in some of those lines. Present quotations are as follows:

WASTE

Cream, Polishing	0 28

WHITE

XXX	0 23
XX	0 21½
X	0 20
Japanese	0 17
XXX	0 24
XX, grad.	0 22½
XLCR	J 21
X Empire	0 19½
X Press	0 17½
X Special	0 15½
XC	0 18½

COLORED

No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 19
Lion	0 17
Standard	0 15
Popular	0 13
Keen	0 11

Above lines subject to trade discount for quantity.

Lead and Zinc Products Show Easier Tendencies

Toronto.

LEAD AND ZINC PRODUCTS.—The tendencies in the ingot and pig lead markets are for a softening, with lower quotations, but prices have been maintained on lead pipe and traps, etc. Expectations are that lower prices will prevail on lead pipe shortly. Some grades of solder have eased off somewhat. The demand for these goods has not been as great as usual and it appears that buyers are expecting further concessions. Prices on principal lines are the following:

Lead waste, list, per lb.		0 17
Lead waste pipe, list, per lb.		0 18
Do., over 8 in., list, per lb.		0 19
Lead pipe is subject to discount of 10%		
Lead traps and bends		add 30%
Lead sheets, 4 to 6 lbs., sq. ft., in rolls, lb.		0 12¼
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.		
Solder, wire, lb.		0 41
Solder, strictly, lb.	0 35	0 36
Solder, commercial, lb.	0 31	0 33
Solder, guaranteed, lb.		0 37
Solder, wiping, lb.		0 30½
Zinc sheets per lb.		0 19

Waste Materials Dull and Unsettled

Toronto.

WASTE MATERIAL.—The market on waste materials is in an unsettled condition at the present time, and the trend of prices is apt to be in a downward direction. Business is at a standstill and cast iron is the only line showing firmness. Quotations are the following but it is not guaranteed that dealers are willing to pay any particular price at present.

WASTE MATERIAL

No. 2 busheling	$13 00
Stove plate, per ton	32 00
Yellow brass	0 10
Red brass	0 15¾
No. 1 machinery cast	33 00
Heavy melting steel	18 00
Heavy copper	0 16
Scrap zinc	0 06
Light brass	0 08
Wrought iron, No. 1, per gr. ton	0 06
Heavy lead pipe	0 06
Old rubbers, boots and shoes	0 06
Overseas lumbermen's rubber boots	0 04
Bicycle tires	0 01½
Automobile tires	0 02½
Heavy lead pipe	0 05¾
Tea lead	0 03

Plumbers' Oakum Firm and Unchanged

Toronto.

OAKUM.—There has been no change in prices on plumbers' oakum. Demand is steady without being large and quotations of $9.50 per bale seem likely to hold.

Canada Plates Show No Improvement

Toronto.

CANADA PLATE.—No improvement is shown in deliveries of Canada plate and the trade is finding great difficulty in filling orders for stove pipes. Little expectation is given of any material change in the situation this season.

Stoves and Ranges Situation Unchanged

Toronto.

STOVES AND RANGES.—There is still a shortage of heating stoves, and that it is not more pronounced or noticeable at present is due probably to the exceptionally mild weather which has been prevailing lately. A stove manufacturer informed Sanitary Engineer that many merchants had been keeping their stocks light in anticipation of a fall in prices, and when a cold spell sets in and the public start demanding stoves the shortage will be felt. The scarcity of raw materials has been the cause of the holding back of production.

Asbestos Products Are Holding Firm

Toronto.

ASBESTOS PRODUCTS.—The demand has been very active for various lines of asbestos products, and pipe and boiler coverings, asbestos cements, packings, wall boards, and shingles have had good sales. Prices are holding firmly and while the cost of production and labor remain as at present little change is expected by the manufacturers.

Prices Lower on Turpentine and Oil

Toronto.

LINSEED OIL AND TURPS.—These commodities continue to decline in price although tendencies are for a steadier tone. Raw linseed oil is quoted at $1.45 per gallon in single barrel lots, with boiled oil 3 cents per gallon extra. Turpentine is selling at $1.95 in barrel lots. Smaller quantities 15 cents per gallon extra, with extra for cans.

Boiler Tube Supplies Are Still Short

Toronto.

BOILER TUBES.—Supplies of these goods which have been very scarce for a long time are very little changed, and jobbers scarcely expect much improvement for a while. The demand is holding fairly well and prices are unchanged. Following are usual quotations:

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	$.....
1¼ inch	32 00	.....
1½ inch	33 00	.....
1¾ inch	35 00	....
2 inch	35 00	30 00
2¼ inch	38 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Ingot Metals Quieter With Few Changes

Toronto.

INGOT METALS.—Business has been dull in ingot metals with but little change in prices. Tin has recovered from recent declines, but copper is very weak. Lead has slowed up a little.

TIN.—This metal has recovered from a previous decline and is again quoted at 50 to 52 cents per pound. Prices broke on news of coal strike but reacted later.

COPPER.—Sagging bodily and very dull is the condition of this metal. The U.S. markets are now below the pre-war level and further price-cutting is in evidence. Quotations on casting copper are 22 cents.

LEAD—This metal has been gradually declining in price, but appears to be steadying. Quotations are at 9 cents. English markets are firming.

SPELTER.—A slightly easier tone is shown in spelter. It is quoted at 9½ cents per pound.

ANTIMONY.—Reported very weak with very little demand and prices unchanged at 10 to 14 cents according to grades.

ALUMINUM.—This metal is unchanged in price. Little business is reported. Quotations remain at 37 to 39 cents.

WINNIPEG

WINNIPEG, Oct. 30—Changes in prices of plumbing and steamfitting supplies have not been very numerous the past two weeks. Malleable and cast goods are still hard to procure. Enameled ware is quiet and without change in price. Cotton waste seems likely to be easier. Supplies of conductor elbows are very low. Stocks of wrought iron pipe are very short and the demand is exceeding the supply. Range boilers are in fair demand and prices are unchanged. Canada plate is still very scarce and the big demand cannot be met. Radiators and hot water boilers are beginning to feel a shortage and the advanced prices now in effect seem likely to remain for some time. Trade conditions have been somewhat quieter during the past two weeks.

Penberthy Valves Higher in Price

Winnipeg.

VALVES.—Penberthy valves are advanced in price owing to higher cost of raw material and increased freight rates. Following are the discounts quoted:

Globe and Angle—20% advance on list.
Check—20% advance on list.
Regrinding Swing Check—25% advance on list.
Gate Valves—10% advance on list.

Bath Cocks Costing More Money

Winnipeg.

BATH COCKS.—A new higher discount is quoted on compression bath cocks, which is 25 per cent. off the list.

Prices Advanced on Oilers, Grease Cups, Etc.

Winnipeg.

OILERS AND GREASE CUPS.—The prices on oilers and grease cups have been advanced owing to higher costs of material and increased freight rates. Following are the quotations for Penberthy oilers and grease cups.

Oilers—Slide top, Nos. 300, 301, 302 and 303, 5% adv. on list; Nos. 304 and 305, net list.
Salute, 50% off.
Sancho, Nos. 600, 601 and 602, 15% off; Nos. 603, 604 and 605, 15 and 2½% off.
Sultan, Nos. 652, 10% adv.; Nos. 653, 654, 655, 656 and 657, 7½% off.
Safety Crank Pin, No. 232, 5% adv.
Grease Cups—Samson, Nos. 800, 801, 802 and 803, 5% adv.; Nos. 804 and 805, 25% adv.
Silex, Nos. 900, 901, 902 and 903, 20% off; Nos. 904, 905, 906 and 907, 15% off.
Oil Cups—Screw top, 5% off; spring top, 15 and 2½% off.

Penberthy Lubricators Up in Price

Winnipeg.

LUBRICATORS.—The prices on Penberthy lubricators have been revised and are higher. The price has automatically changed on these lines as have all other lines of brass goods, due to higher costs of material and increased freight rates. Following are the quotations:

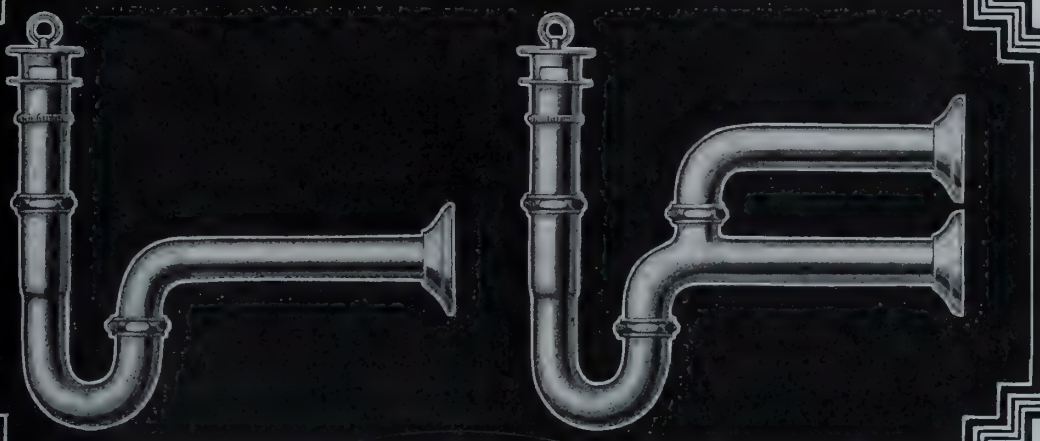
Polar Lubricators, single connection—1-3 pint, $11.35; ½ pint, $11.80; 1 pint, $14.35; double connection, 1-3 pint, $11; ½ pint, $11.45; 1 pint, $14.
Plain Engine Lubricator—1½ in., $3.35; 1¾ in., $3.65; 2 in., $4.55; 2¼ in., $5; 2½ in., $5.65; 3 in., $6.65.

Boiler Demand Fair; Stocks Diminishing

Winnipeg.

RANGE BOILERS.—There are quite a few range boilers being sold, and the supply, although in fair shape, is gradually diminishing. The heavier plates are easier to obtain than the lighter, and for this reason boilers are somewhat more plentiful than many other products made of sheets.

RANGE BOILERS—	
30 gallons	$15 00



It Pays to Give Your Customers the Best

Satisfied customers are your best advertisement—as they are ours. Your customers deserve the best that you can give them—in Brass Goods as well as in workmanship.

MUELLER Brass Goods are made with such infinite care and precision that no special fitting is necessary for their installation—thus saving you time that means profit on the job.

MUELLER ADJUSTABLE TRAPS

You can save time by installing *MUELLER* Adjustable Traps—either plain like A 2090 or vented like A 2094, illustrated above. *MUELLER* also makes "S" traps both plain and vented. All with cleanout plugs if desired.

MUELLER Traps, like every *MUELLER* product, are made from carefully selected materials by skilled artisans, who take pride in their work. The name *MUELLER* is a guarantee of excellence.

Write for detailed description and prices.
Mail orders given prompt attention.

H. MUELLER MFG. CO., LIMITED, SARNIA, ONT.

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Illinois, U. S. A. Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

35 gallons	17 50
40 gallons	20 40
52 gallons	27 20
66 gallons	35 00
82 gallons	48 00
100 gallons	62 00
120 gallons	77 00

Decline Likely in Cotton Waste Prices

Winnipeg.

COTTON WASTE.—Prices have been changing on raw material in New York. Raw waste of various kinds has fluctuated considerably and there is a likelihood of the various quoted prices to the trade being lower. There is a fair demand for this product.

Candle Wick Packing Drops Three Cents

Winnipeg.

CANDLE WICK PACKING.—The price on candle wick packing has dropped 3 cents per pound, due to fluctuation of the cotton markets, and is now quoted at 85 cents per pound.

AT WORK AGAIN

Montreal.—Sanitary Engineer understands that striking plumbers here are again at work, to a great extent at least, and the masters seem to be little inconvenienced at present. There is a fair amount of jobbing to be completed though the conditions are not overly brisk. Doubtless the cold weather conditions will help relieve any shortage of journeymen that exists at the present time.

Collections Important During Uncertain Period

IF there is a feeling of nervousness in the trade with regard to fall business and the outlook for next year—and there seems to be such a feeling, particularly in the larger centres of population—it is all the more imperative that extra care be exercised in the matter of extending credits, either long or short term, to customers. The banks, partly because they require the money to finance the recent crops, have gone a long way toward curtailing credits to manufacturing and retail interests. The wise merchant will exercise the same due caution. He should do so at all times, but particularly so when pressure is brought to bear on his business by the financial institutions of the country.

The Individual Element Again

It is certain that business will be harder to get during the next 12 months than it was during the 12 months in 1919. Merchants will watch their businesses much more closely than they have with regard to the smaller details, with regard to buying, and with regard to the best methods of merchandising their goods to get quick turnovers. Nearly everything in the zone of business today hinges upon the sincerity of the interest that the individual takes in the performance of his duties. All occupations are suffering from the indifference of the bulk of their operatives. Both men and women workers do not seem to see that the losses their neglect and half-hearted work entail, bulk to a terrific total which is projected directly against their own comfort. Many have more regret over the loss of a dollar than they have over the loss of the consciousness of duty. The real fact of the matter is to-day that the country is in far greater danger of self-indulgence panic than it is of a money panic. Safety, prosperity and the ability to enjoy more fully the privileges of the present advancement of civilization, are each wrapped in the desire to serve in the manner that the individual himself would be served. Such a belief practised makes one first worthy of prosperity, then presents him with it and protects him in it. Money, currency and credits, are too much thought of as all-powerful elements to which the individual feels himself unrelated in so far as they show the direction of our commercial travel. A noted writer has said: "Money and the use of tightness of its flow is incorrectly looked upon as the power of trade, whereas it is merely a material to which certain natural properties belong after man has put motion to it. Money is the belt that connects the fly wheel on the motor of brains to the pulley on the generator of brawn." After all, the individual element is the telling factor in business, and the more of it that finds its way into business during the coming months the better for the business.

Credit Man's Advice

In conversation with the credit man of one of the large wholesale houses in Toronto, it was strongly advised that stocks be kept as well assorted as possible; at the same time they should be kept as liquid as possible. In getting in touch with the trade in his line, he tendered them the following advice:

"For several years we have been passing through very abnormal times, and it is evident this unsettled condition is still with us, making it necessary to give business, whether large or small, most careful study.

"Prices, as you will observe in looking through this bulletin, are still advancing, and as long as these conditions remain, credit is being stretched to the limit.

"The retail merchant, as well as the jobber, should put forth every effort to turn over his stock as many times as he possibly can, and also to promptly collect his outstanding accounts.

"To get his money in will help every merchant to maintain an easy financial position as well as provide means to keep his stock well assorted, and thus give service to his customers.

"The reports regarding the crops throughout this province are most encouraging. The farmer will, no doubt, obtain high prices for his products, and in consequence be in a position to co-operate with the retail merchant by making prompt settlement of his debts.

"We would suggest at this time of the year that you go over your accounts very carefully, see that your bills are rendered promptly every month, and that customers who do not respond get timely reminders. The result of such continuous effort, we feel, will be encouraging to you."

A Banker Agrees

Sanitary Engineer showed this advice to one of the leading bankers of the city, with the result that there was a hearty agreement on his part. "There is only a certain amount of money now available," he said, "for credit, and when this is used it can't be used again. By prompt payments, the business of the country can be carried on much quicker than by slow, dragging payments. The outlook for the crops in this country is good, never better, and when these are taken in it is turning it into new money. But during the time until the crops are taken off, the country relies upon the banks to finance them. Merchants should keep this in mind because if the crop are taken off, and not financed properly and quickly, the merchants themselves will suffer in the end."

It is well that such advice be borne in mind with the opening of fall business, both buying and selling. Purchasing for the coming spring will be in progress before many weeks, and, as Sanitary Engineer has advised before, care should be taken to meet all the legitimate requirements of the trade, having due regard to uncertainties both as to manufacturing costs and the general attitude of the consuming public.

FOR SALE—FLANGED AND FACED FITtings from 2½ in. to 8 in.; elbows, tees, cross tees, reducing tees and reducing elbows. At a very low price. American Plumbing Supplies, 14 Craig St. W., Montreal.

Once Sold They Stay Sold

Morrison Gauges

There is no requirement for gauges that you cannot supply with Morrison Gauges, and with a good stock of Morrison Gauges you can make a satisfied customer of every prospect.

Reliable, dependable, trustworthy gauges that have the confidence of engineering and mechanical men everywhere.

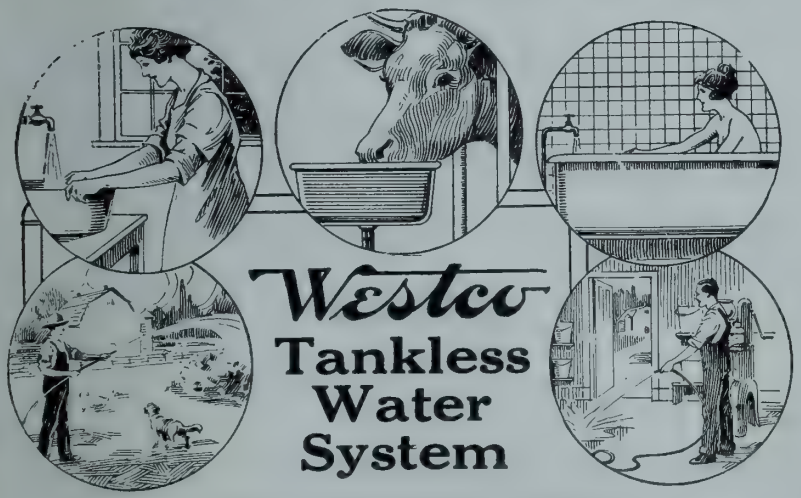
Morrison Gauges include gauges for every purpose—for indicating or recording—pressure, temperature, altitude, revolutions, etc. Watch for the name Morrison, a guarantee of quality.

James Morrison Brass Mfg. Company
LIMITED
93-97 Adelaide Street West - - TORONTO, Ont.

TRADE MARK J.M.T. A GUARANTEE OF QUALITY

The enviable reputation of Morrison Gauges not only helps sales, but builds prestige for your store.

Write for full particulars.



Westco Tankless Water System

Costs the Farmer Less--- Easier for You to Sell

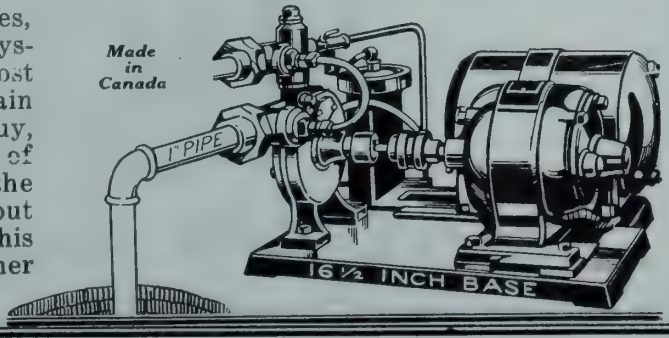
A careful buyer and a shrewd judge of values, the farmer will buy a Westco Tankless Water System in preference to all others once its low cost features are properly placed before him. Explain to him the reasons why a Westco is cheaper to buy, install, and maintain. Suggest, as well, a few of its advantages—the no-storage tank feature, the time, trouble, and labor it saves him; point out the advantages of having running water in his kitchen, bathroom, dairy, barns, etc. The farmer will quickly realize its value.

The Westco System is giving splendid service in homes in the suburban and rural districts and on farms where electricity is available. It is a small, compact system—weighs less than 100 lbs., is 16½ in. long, 14½ in. wide, and 11 in. high. It operates noiselessly, and yet will pump 300 to 500 gallons per hour.

It is entirely automatic. Open the tap—pump starts. Close tap—pump stops. There is nothing to get out of order, as it has no gears, no valves, no belt, and is self-lubricating. *It has only one moving part* —the impeller in the pump.

The Westco abounds in features vitally interesting to farmers and rural residents. Let us tell you how you can make big money handling this splendid system. Write us at once for particulars.

WESTCO PUMPS, LIMITED
707 Yonge St., Toronto, Ont.



"The City of Peril"

By Arthur Stringer

"THE CITY OF PERIL" is full to the brim—and overflowing—with thrills, as it moves with kaleidoscopic swiftness from New York to Petrograd, and back again. Mr. Stringer always writes vividly and picturesquely—and every chapter has its *punch*. No living Canadian author can write more absorbing fiction, or put more compelling action into every chapter. "The Hammer of God" writes mysterious notes which throw Wall Street into a panic. Who is the "Hammer of God?" By reading this short-length novel, which will appear in huge instalments in this and the following issues of MACLEAN'S, you can satisfy your curiosity.

What Will Calder Do ?

NO one knows, not even Mr. Calder, according to J. K. Munro. This article also tells in Mr. Munro's inimitable fashion some secrets of Crerar, the Hired Man's Hero; of Mackenzie King and his all-star Talented Entertainers; of Premier Meighen, who has "hurled himself into the arena, with the National Policy in one hand and an axe in the other."

Other Articles and Stories Include :

"Banquets and Banqueteers"—Col. George Ham continues his recollections of famous and piquant characters. These reminiscences are being read from P.E.I. to B.C.—and beyond, and attracting scores of interested letters.

"St. Denis and the Plague"—By E. Llewellyn Hughes. A distinctive story of real merit, and a very charming girl.

"The Little Warrior"—By P. G. Wodehouse, has another rib-tickling instalment of generous proportions.

"Orsifer of the Law"—By Archie McKishnie, is another Lenix Ballister story, which shows the swarthy "hero" in a new light.

"Cash and Carrie"—By Leslie W. Barnard, a young Canadian author whose fiction is attracting attention.

"Sketches of Many Premiers"—Mrs. Asquith knew seven Premiers of England—and knew them intimately. There are not many untold secrets in Margot's life.

Review of Reviews Section

Some of the subjects discussed here are :

"Startling Facts from Versailles."
"One Solution of the Servant Problem."
"The New British Empire."
"Cancer Increase and How to Check It."
"The Women of Poland."
"Co-Partnership, the Labor Trouble Remedy."
"America Must Take Sides."
"Hungary Aiming to Restore the Monarchy."
"Murder of the Czar and His Family."
"Wealth vs. Love."
"Signs That Show a Man is 'Slipping'."

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Over 80,000 Canadian Families Buy

MACLEAN'S

"CANADA'S NATIONAL MAGAZINE"

NOVEMBER 1st ISSUE *On All News-stands* ***20c***

The Publisher's Page

TORONTO NOVEMBER 1, 1920

We're with You

ON Wednesday, Oct. 20, the Association of Canadian Advertisers endorsed the statement of W. G. Stewart of Goodyear Tire and Rubber Company that all trade newspapers should be required to furnish audited statement of circulation.

Advertisers who are members of A. C. A. and those who are not would be acting in their own interests and in the interests of Canadian publishers by insisting that every publication in which their advertisements appear should come out into the open and furnish a statement of circulation certified by some independent organization such as A. B. C.

SANITARY ENGINEER is the only paper in the Canadian plumbing and heating trade that has applied for membership in the Audit Bureau of Circulations.

SANITARY ENGINEER was the first business paper published in the interests of the Canadian plumbing and heating trade, and still is first in point of circulation, as well as service. It is read by the trade for profit as well as for pleasure and is the direct medium between manufacturing jobbers and the trade.

Advertising rates: 1 page, $21; half page, $11.75; quarter page, $6.50; on 24-time order.

ESTABLISHED 1887

Sanitary Engineer, Plumber and Steamfitter of Canada

Published on the First and Fifteenth of Each Month

143-153 University Avenue **TORONTO, CANADA**

GEO. D. DAVIS, Manager

Increasing Consumption of Your Product Through Dealers' Influence on Customers

When your reputation is thoroughly established, when the value of your organization is fully appreciated by the trade, when your product and its use are fully understood, when distribution seems ideal, the day has come to skillfully direct your continuous advertising on increased consumption of your product through the dealers' influence on customers and sales.

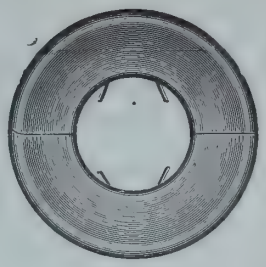
A message through Sanitary Engineer—where the whole plumbing trade of Canada seeks its business news—will supply the dealer and his clerks with the selling points of your product, the sales plans you have evolved, and furnish the means and inspiration for increasing consumption of your product to your pleasure and profit.

Even One Half Hour

spent reading your trade paper is time well spent. Then pass it on to your assistant, and let it help him to help you.

OPEN VIEW
NO. 10-A

The CEILING PLATE that's better



TOP VIEW
NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾" WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

Gem No. 4.

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.

Gem No. 4 Automatic Air Valve

Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

Write for catalog showing our complete line of specialties.

The BEATON & CADWELL MANUFACTURING Co.
New Britain, Conn.

Eastern Agent: J. R. Devereux & Co., 358 Beaver Hall Square, Montreal. Western Agent: A. E. Hinds & Co., Chamber of Commerce, Winnipeg.

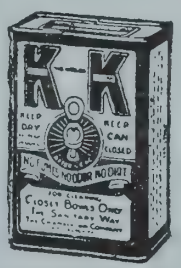
Fastest Selling Cleaners
On the Market

For clogged drains and frozen pipes Desolvo saves money. time and annoyance. It saves tearing up the house and lawn, thereby reducing cost of clearing clogged pipes. Desolvo is popular with all housewives, and they buy often. Order to-day.

At Your Jobbers

Chamberlain Desolvo Co., Limited
110 Church Street, Toronto

General Offices **Pittsburg, Pa.**

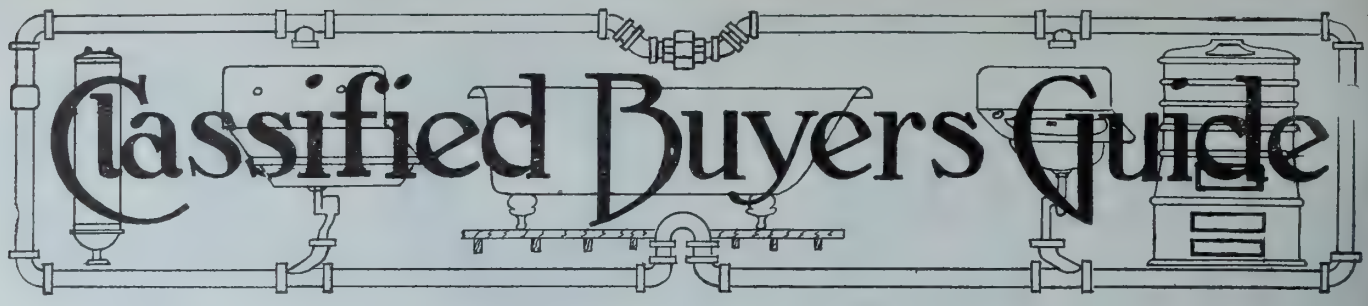


Eastern Canada Representatives:
Richardson & Bureau, 55 St. Francis Xavier St., Montreal
Ontario Representative:
L. F. Mayne, 99 Quebec St. Toronto
Western Representative:
N. D. McPhail & Co., Standard Bank Bldg., Vancouver, B. C.

Extending the Uses of Your Product by Informing Dealers

When the efficient, modern advertiser finds his reputation firmly established, the confidence of the trade firmly held, distribution ideal and his product and trade-mark thoroughly familiar, he directs the full force of his continuous advertising toward increasing the uses of his product by showing the dealer and his salesmen each week new uses for his goods that both stimulate sales and increase the consumer satisfaction with the product.

A message to the whole plumbing trade of Canada through Sanitary Engineer is productive, profitable and reliable "business insurance" for the future.



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B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

AIR PRESSURE TANKS
The Canadian John Wood Mfg. Co., Toronto.

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Steel & Radiation, Ltd., Toronto.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.
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Steel & Radiation, Ltd., Toronto.
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Trimont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CEMENT
The Northwestern Chemical Co., Marietta, Ohio

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J. H. Williams & Co., Brooklyn, N.Y.

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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.

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Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DAMPER REGULATORS
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B. F. Sturtevant Co., Hyde Park, Boston, Mass.

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The Commercial India Rubber Manufacturing & Supply Co., Ltd., London, Eng.

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Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY
Empire Mfg. Co., Ltd., London and Toronto.
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EXPANSION TANKS
Toronto Hardware Mfg. Co., Ltd., Toronto.

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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
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Beaton & Corbin Mfg. Co., Southington, Conn.
Canada Metal Co., Ltd., Toronto.
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Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
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Standard Sanitary Mfg. Co., Ltd., Toronto.
Wolverine Ltd., Toronto, Ont.

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Wolverine Ltd., Toronto, Ont.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

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Steel & Radiation, Ltd., Toronto.

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Empire Mfg. Co., Ltd., London and Toronto.

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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

GRATES FOR RANGES, FURNACES AND BOILERS
McIntyre & Taylor, Toronto.

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HEATING APPARATUS
C. A. Dunham Co., Ltd., Toronto.

HEATERS
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Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.

HEATING SYSTEMS
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HUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

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J. H. Williams & Co., Brooklyn, N.Y.

HOT WATER COILS, DOMESTIC
McIntyre & Taylor, Toronto.

HUMIDIFIERS
B. F. Sturtevant & Co., Hyde Park, Mass.

LAUNDRY TUBS
The Canada Metal Co., Ltd., Toronto.

LEAD
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hoyt Metal Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

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J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS
Gurney Foundry Co., Limited, Toronto.

MIXING VALVES
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

MONKEY WRENCHES
Trimont Mfg. Co., Roxbury, Mass.

PACKING
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

PACKLESS RADIATOR VALVES
Kerr Engine Co., Walkerville.
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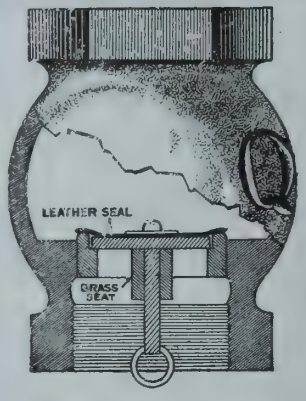

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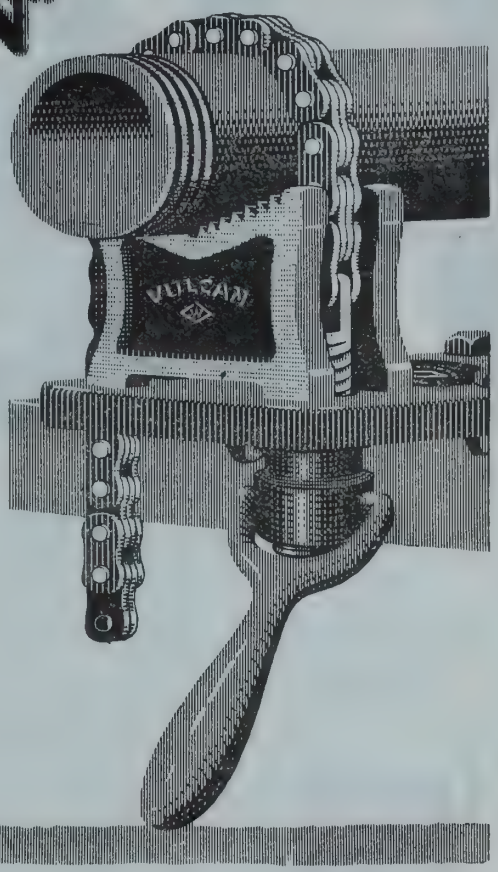

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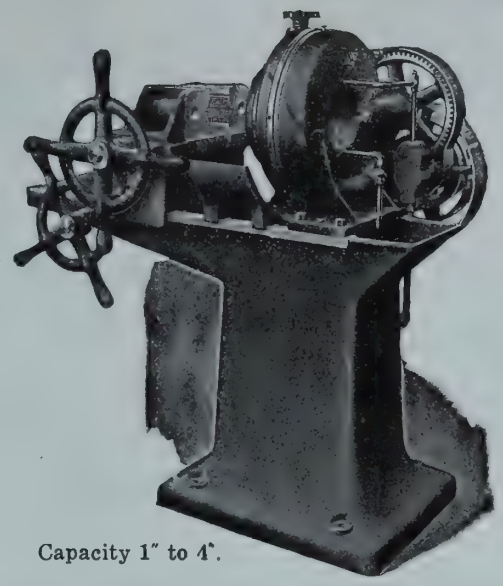

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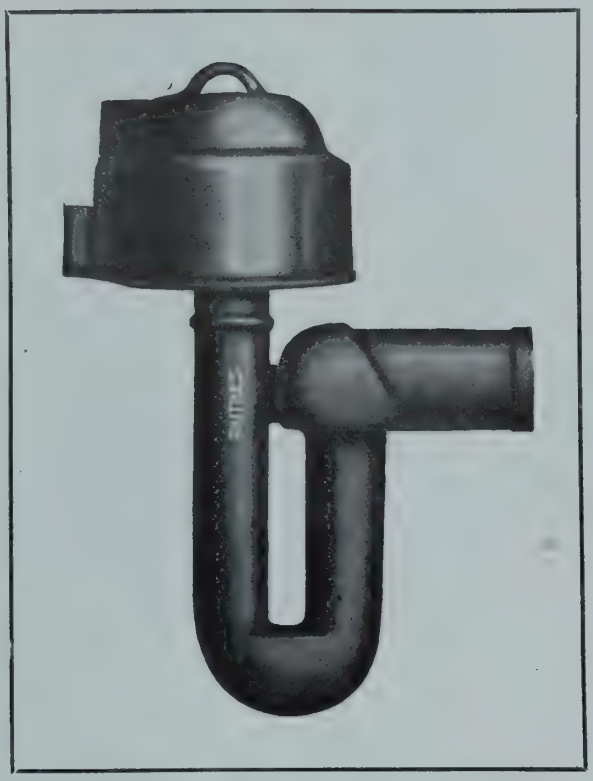
Induce the farmer to improve the sanitary conditions of his home. Life on the farm will thereby be rendered more congenial and attractive and the difficulty the farmer experiences in retaining adequate help will be considerably reduced—Result: — Increased agricultural production, and consequently, lower food prices.



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Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, NOVEMBER 15, 1920 No. 22

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CATALOGUE No. A-502

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A Little "Straight Talk" to the Canadian Plumbing Trade

By LEON MURRELL HEWITT

From our best knowledge the supply in our line is not quite up to the demand on staple materials that enter into plumbing and heating installations. Building is far, very far, behind, and there is no reason under the sun why next year should not be the best building year this country has ever seen.

Suppose, for instance, that they do not build a great deal. That should not hurt us like it will other construction lines. All we have to do is to hustle around and put in plumbing and heating in houses that are already built and there are thousands of them that need it. How about taking out those old, antiquated plumbing fixtures that have been in for some time and selling them new silent closets, built-in tubs, showers, and taking out those old flat rim sinks and replacing them with new ones, snow white, with backs and drain boards all in one piece? Why, man, you can start a campaign right now and have hubby buy his wife one for a Christmas present. There is nothing she would appreciate any more and his property would greatly increase in value if he has modern plumbing and an economical heating system. This is easier to do than you think. Try it.

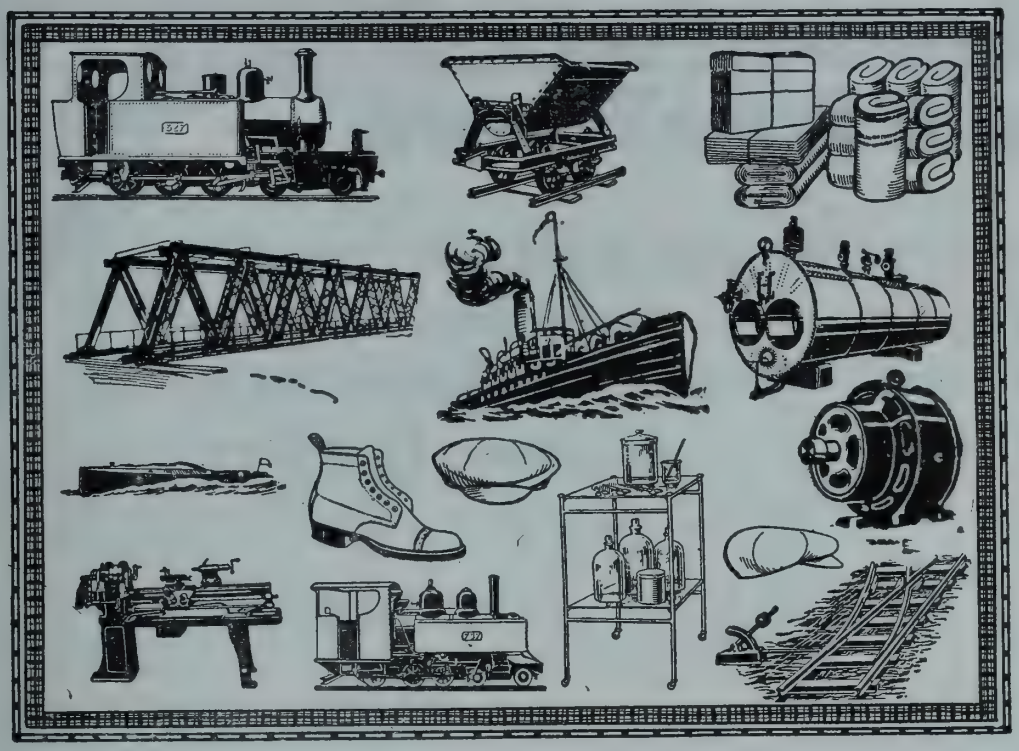
Then why confine yourself to this? There are thousands of farmers in the country who need modern plumbing and heating systems. Certainly many will buy complete plumbing jobs. When they buy they have to have the whole works: Sewer system, water supply and all. This calls usually for a lighting plant, an electric pumping outfit, septic tank, the plumbing fixtures and roughing-in, the labor, the power washing machine, the toilet accessories, etc. And if you are alert, you get a "whack" at the whole job all in one lump. Suppose the plumbers in this country all combined to sell and install only 10,000 of these outfits in 1921. They will average around $2,000 apiece. Man alive, that is $20,000,000 turned loose among us. Wouldn't that help some?

But we do not think building is going to let up to where we will be damaged to any great extent. Now is a nice time to get the farmers interested in our goods. It is easier now than it has been, for with these conveniences they can keep better help and then the boys will stay at home better if they can have the city conveniences.

Read the trade papers and let's all stick together by going to our association meetings and discussing these problems. We have never been messed up very much when we have followed the advice of the trade papers. Of course during the war and lately we have experienced some trouble in getting all the stuff we needed, and as we see it there is no use to get nervous over a thing that does not exist.

CANADIAN BRASS COMPANY, LIMITED
GALT TORONTO

MINISTRY of G R MUNITIONS



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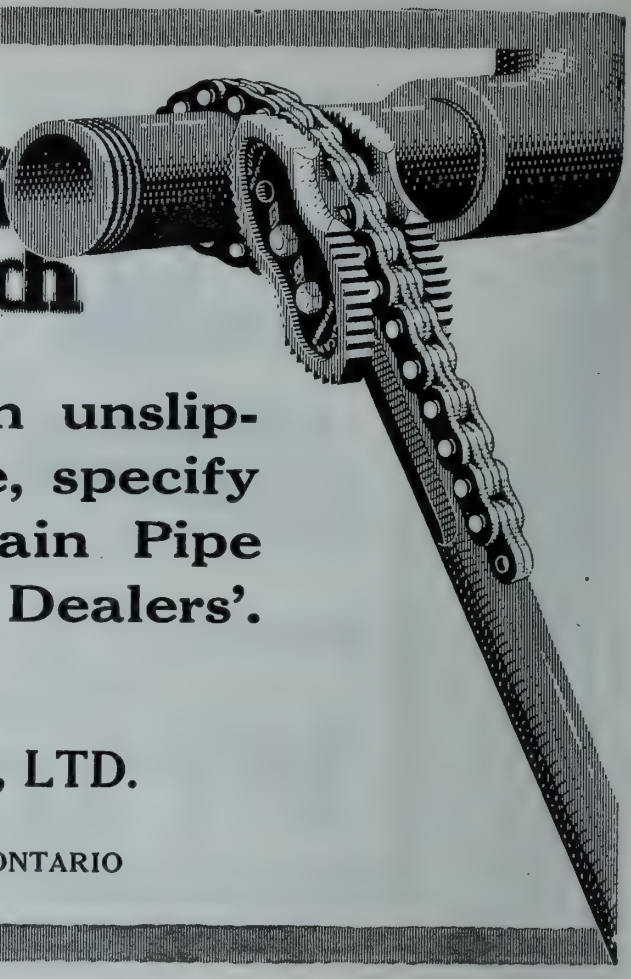

Where strength and an unslipping grip is a requisite, specify Williams' "Vulcan" Chain Pipe Wrench. .. At your Dealers'.

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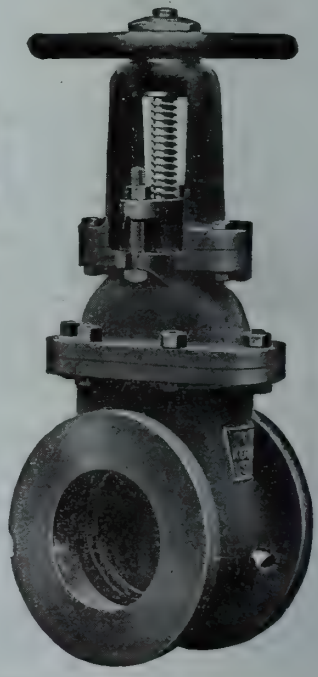

They insure the best of service, and stamp any job on which they are used as well equipped.

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Catalogue No. 5 on application.

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MISTAKES are easily made in cost and selling prices. Through the hurry and worry of a day's work it is an easy matter to quote selling prices under cost prices, a mistake that may cost you many dollars.

Make Allpriser Service your price clerk and eliminate losses, an indispensable service to the trade—it makes estimating easy.

Allpriser Service consists of a flexible, leather-bound book 7 x 9, of 150 loose-leaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest changes.

A postcard will bring full particulars and sample sheets by return mail.

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Do You Read These Advertisements?

Every advertisement in this magazine is worth reading. It is the product of some concern that is using a modern piece of selling machinery— technical paper advertising—to present most effectively to you the leading features of its line.

These advertisers are making it easier for you to buy intelligently with the least waste of your time and theirs. They realize that a sales force can not replace this service at equal cost. They know that advertising is good business, for the manufacturer who does not advertise cannot save the cost of advertising. Consistent advertisers are progressive merchandisers. They are saving your money and their own; and it pays to do business with them.

Don't miss your opportunities. These advertisements are interesting. Some are distinctly instructive, and a glance through them every month will keep you posted on the latest developments of Marine Engineering in Canada.

Pipe Fittings

Made in Canada

The Brand that has the Quality

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

CAST IRON FITTINGS
With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS
With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads.

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

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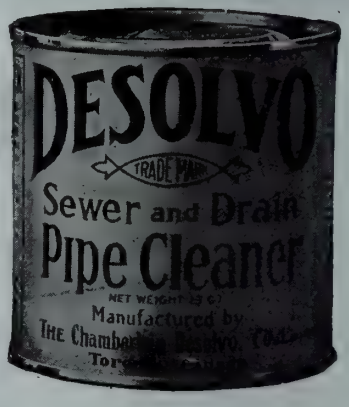
Richardson & Bureau, 55 St. Francis Xavier St., Montreal
Ontario Representative:
L. F. Mayne, 99 Quebec St. Toronto
Western Representative:
N. D. McPhail & Co., Standard Bank Bldg., Vancouver, B. C.

Continuous Sales

Display Desolvo on your counter, and it will sell itself. Desolvo mixes with cold water, and generates heat itself to thaw frozen pipes. It is your one best bet as a business-builder. Sell your prospect his first can and continuous sales are sure to follow. Ask about K. K.

At Your Jobbers

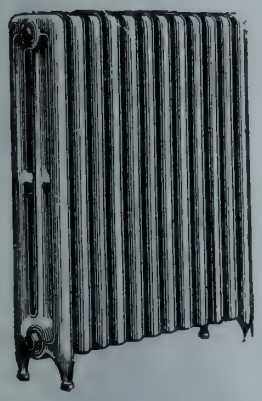
Chamberlain Desolvo Co., Limited
110 Church Street, Toronto
General Offices **Pittsburg, Pa.**



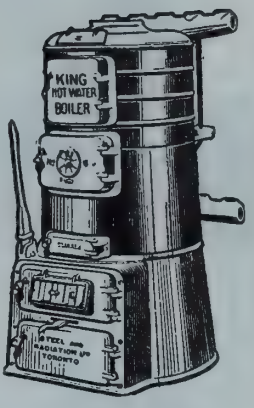
Increasing Consumption of Your Product Through Dealers' Influence on Customers

A message through Sanitary Engineer—where the whole plumbing trade of Canada seeks its business news—will supply the dealer and his clerks with the selling points of your product, the sales plans you have evolved, and furnish the means and inspiration for increasing consumption of your product to your pleasure and profit.

Delivery on Short Notice



KING HOT WATER BOILERS AND IMPERIAL RADIATORS



We can make prompt delivery on King Boilers and Imperial Radiators. This will be good news to engineers who are tied up because of non-delivery of supplies from other sources. Every one of these heating systems you install will prove a very efficient salesman for you, because the simplicity of operation and low fuel consumption of King Boilers make them satisfactory wherever they are.

STEEL and RADIATION, Limited

Head Office: 80 Adelaide St. E., Toronto **Sales Offices : Montreal, Toronto, Quebec**

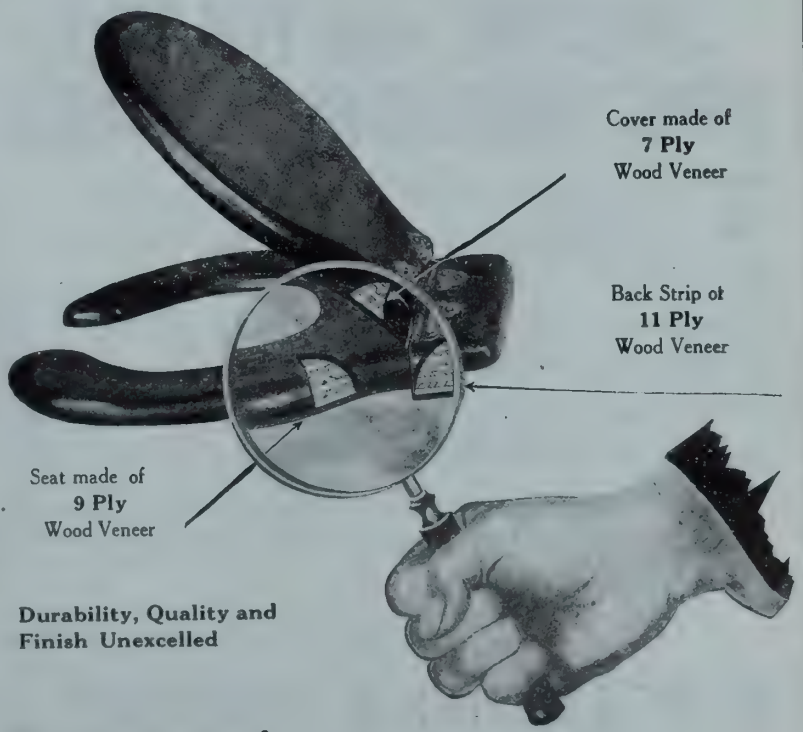
A complete stock of all lines is carried at our Montreal warehouse.
Western Agents: The J. H. Ashdown Hardware Co., Ltd., Winnipeg
Carroll Wilson, Ltd., Edmonton
T. L. Peck Co., Vancouver

The Everlasting Veneer Toilet Seat

For Strength, Cleanliness and Hygiene

MANUFACTURED of air-seasoned wood veneer in 7, 9 and 11 plys, according to the amount of strain and wear required of its respective parts, the veneer held together by means of our special wood cement that is proof against extremes of heat, cold and dampness, the **Everlasting Toilet Seat** will outlast any other on the market.

Specially recommended for cold, damp basements, schools, factories or other public places where the closets are subjected to all manner of abuse or rough usage. The **Everlasting Veneer Toilet Seat** will never crack, warp or split.



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CANADIAN VENEERING CO., Inc.
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FIVE WORKS---OVER 3,000 EMPLOYEES

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GUNMETAL and BRASS VALVES and COCKS.
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BRASS BOLTS and NUTS, STUDS and GENERAL TURNED WORK FROM THE BAR.
CAST AND MALLEABLE IRON COCKS and PIPE FITTINGS.
PRESSURE and VACUUM GAUGES.
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COPPERSMITHS' WORK.
"STELLA" BRAND ALLOYS: MANGANESE COPPER, SILICON COPPER, FERRO ZINC, PHOSPHOR COPPER and TIN, etc.

"UBEL" SERVICE

If you are interested in any or all of the lines mentioned, and are in a position to take a hand in the energetic distribution of the same, please communicate with us NOW to our Head Office, at above address.

Representatives for Canada (East of Alberta)
W. H. CUNNINGHAM & CO., 269 Richmond St. West, Toronto.
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JARDINE and TOLEDO PIPE-THREADING TOOLS

"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2½ to 6 in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or gimcracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

SEND FOR CATALOGUE

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Sole licensees to manufacture and sell Toledo Pipe-Threading Tools in Canada.
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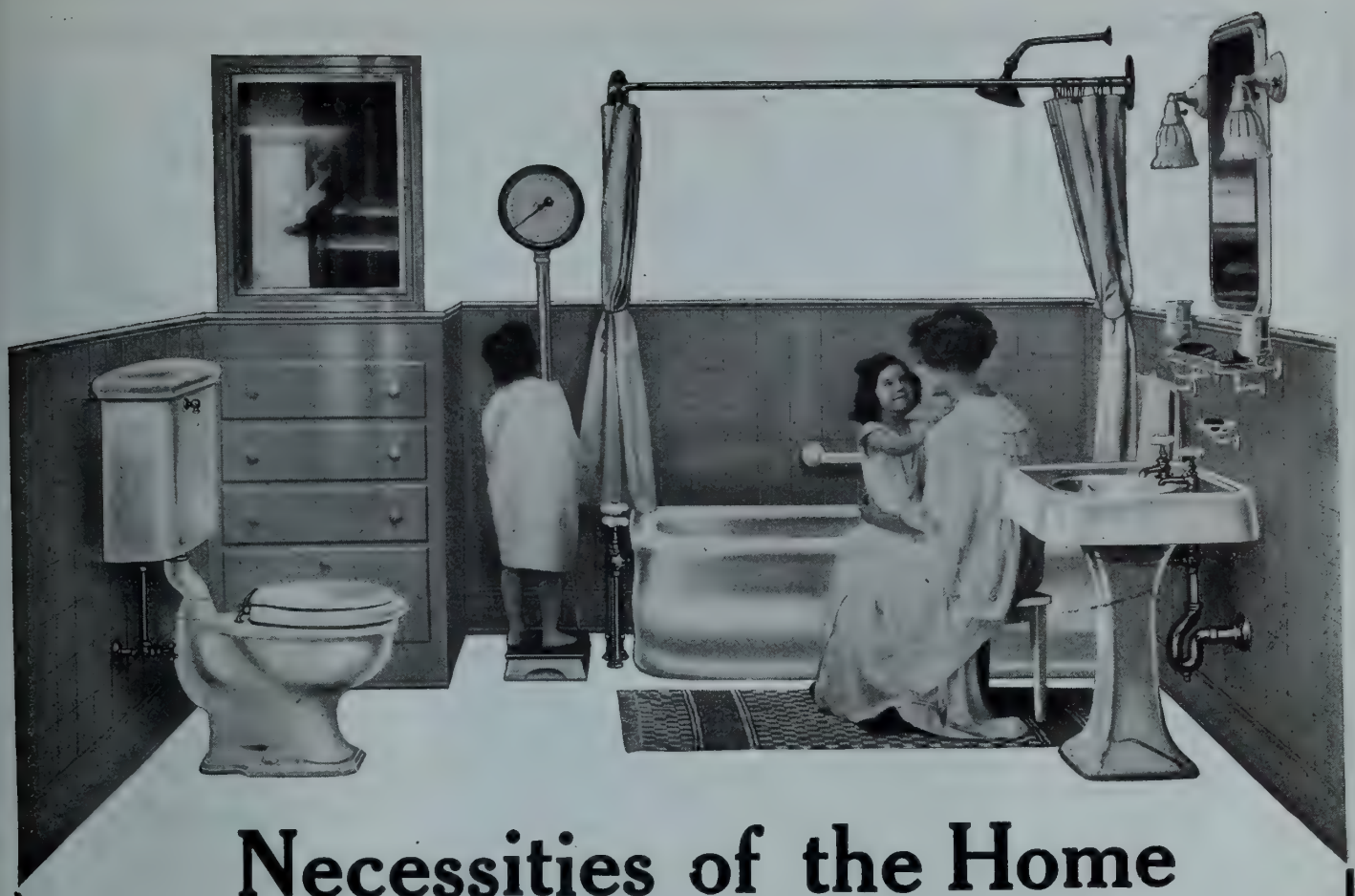
Brockville and East—J. R. Devereux, 358 Beaver Hall Square, Montreal.
Belleville and West—W. H. Cunningham & Co., 269 Richmond Street West, Toronto, Ont.



Necessities of the Home

Home is the centre of civilized life. Things that enhance health, comfort and bring good cheer are necessities.

House owners and builders realize that the modern home demands more than one bathroom. Many men have two or more cars—why not more than one bathroom?

The task of making guests more comfortable lends pleasure and not worry when the host has ample bathrooms properly equipped with sanitary plumbing fixtures.

Plumbers that keep in mind the **more than one bathroom idea** when talking to house owners and builders will find their suggestion welcomed and it will work out to their own profit as well.

"Standard" PLUMBING FIXTURES

Standard Sanitary Mfg. Co.
Limited

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Montreal:
358 Beaver Hall Square

Winnipeg Showrooms:
76 Lombard Street

Calgary:
325 Eighth Avenue West

Hamilton Store:
20-28 Jackson Street West

Vancouver:
847 Beatty Street

"MADE IN CANADA"

SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XIV. TORONTO, NOVEMBER 15th, 1920 No. 22

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The Pussyfoot Closet Tank Completely

Fills the Need of a Quiet Operating Closet

Quality Silence Durability

Service Efficiency Satisfaction

Pussyfoot Closet Tank

This high quality tank is durable and efficient. Its silent operation and the hard wearing service it gives, bring satisfaction to both its owner and the plumber who installed it.

The Pussyfoot closet tank is sold on Merit, and will give satisfactory service year after year.

The Pussyfoot typifies the particular tastes of Canadian home-builders, and completely fills the need of a quiet operating closet.

The C.M.C. Trade Mark of quality is your guarantee of satisfaction. We can supply you with: **Lead Pipe; Sheet Lead; Bar or Wire Solder; Block Lead; Aristocrat Laundry Tubs; Traps and Bends** and, in fact, everything for the plumber.

The Canada Metal Company, Limited

Fraser Avenue

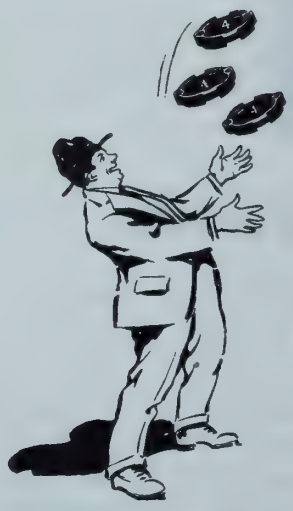
Hamilton Montreal TORONTO **Winnipeg Vancouver**

Ask Your Jobber for

Easy Wiping Solder and The Aristocrat Laundry Tub

The Front Is Back— And The Back Is Front—

By Booster Binx



Therein lies its beauty.

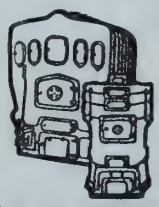
Not beauty to look at. It's not beautiful. It's just good looking.

The idea itself is the beautiful thing.

The idea that you or I can juggle that intermediate section so the fire travel openings will come right, whether the smoke pipe is taken off at the front or back of the boiler.

No use telling you what an advantage it is.

Furthermore, if you don't like it because I talk about the Burnham everytime, you come over and smoke my best cigars—then why bother to come over?



Lord & Burnham Co Limited of Canada

(Boiler Department)

ROYAL BANK BLDG.
TORONTO

Factory :
St. Catharines, Ontario

Burnham Cosy Comfort Heat

Established 1907

Circulates Throughout Canada

Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO, NOVEMBER 15, 1920 No. 22

Enamelware Advance Indicates Firm Tendencies

Manufacturers of Enamel Fixtures, Cast Iron Soil Pipe and Fittings Soon Forced to Buy Materials at Higher Prices—Now Pay $44.60 Per Ton for Pig Iron Where Formerly They Paid $25.75 Per Ton —Manufactured Products from Copper and Brass Ingot Metals May Soon Be Reduced—Heating Trades Report Good Volume of Business.

WHILE price reductions are the order of the day in practically every branch of trade in Canada, and a resultant slackening of buying is in evidence, it is significant that prices on most plumbing lines are firm. In fact it is notable that an advance has been recorded this week on enamelware lines such as sinks, baths and lavatories. This advance amounts to 7½% and simultaneously with this announcement manufacturers of these lines have altered their quotations to a list and discount basis instead of the net price list as formerly used.

Discussing this advance on enamelware lines, in view of the downward tendency in most other products, Mr. H. L. Glendenning, of the James Robertson Mfg. Company, explained to Sanitary Engineer that prior to the latest advance manufacturers of these lines were working on raw materials which cost much less than the present quotations. These manufacturers are now said to be running short on these supplies bought a year or so ago and it is the fact that they have to pay higher prices for materials combined with the fact that overhead charges including labor are still at the high level that has necessitated the present advance.

In this connection taking pig iron as a basic material it is noted that the monthly average price in the primary market on this product in September, 1920, was $44.60 per ton compared with a price of $25.75 per ton in September, 1919. This is said to be a fair example of the manner in which most materials entering into the manufacture of enamelware fixtures have advanced.

Cast Iron Soil Pipe and Fittings

Extending this argument to cast iron soil pipe and fittings, Mr. Ince, manager of the Toronto Hardware Mfg. Co., stated that manufacturers were getting near the end of their former supplies of raw materials and would soon be forced to go into the market and pay higher prices.

Downward Tendency in Some Lines

As result of recent declines in some ingot metals, a downward tendency is noted this week in prices of lead pipe, traps, bends, solder, copper and brass rods and sheets. This decline in ingot metals might well be expected to be reflected in prices on many lines of manufactured plumbing products, and while manufacturers agree that a continued decline in these metals will bring lower prices on manufactured products, prices as yet are firm largely as result of the reasons afore mentioned.

High Fuel Prices Affect Heating Installations

While there is reported to be a little slackness in buying at the present time plumbers report a fair volume of business chiefly consisting of completing installations in new buildings now being finished up. The heating trades report a good volume of business in new installations and repair work. This is said to be largely due to the fact that economies practised by property owners during the war are now being replaced by the purchase of new installations. Fuel is so high in price that the utmost economy is required of the stove or furnace and it is stated that many people have realized that repairs or a new installation is warranted by the saving in fuel. The fact that lower prices have been slow in materializing in plumbing and heating goods is also a factor in the situation as many were undoubtedly holding back awaiting lower prices on these lines.

Greater Movement of Commodities

There is said to be now discernible in the United States a tendency toward a greater movement of commodities. The present slackness in buying has resulted from most buyers having the idea that prices would go to even lower levels, and if the movement of goods is re-commencing it indicates that more confidence is felt and that in many lines prices are somewhat near a normal level. A resumption of buying on a normal scale is looked for in Canada early in the New Year, and with the expected revival of building to house the increasing population of the country, plumbing trade promises to be fairly brisk.

There is no doubt the plumbing and heating industry has arrived at the stage when it must take definite action, following a definite plan, if it is to obtain its just and equitable portion of the money that will be expended in the future by the public. Plumbers can take a leaf from the book of other merchants' experience in stimulating trade under such circumstances by the use of advertising and other methods and by watching trade indicators such as the market quotations.

Stop Disease by Sanitary Housing

Address of Montreal's Sanitary Engineer Outlines Advantages of Sanitary Housing—Great is Importance of Position Occupied by Plumber

MONTREAL.—A very interesting and educative address was delivered by Mr. Aime Cousineau, sanitary engineer of the City of Montreal, before Mount Saint Louis Academy, on "Public Sanitation." This was delivered in French. The address was based, largely, on conditions in Montreal, with which Mr. Cousineau has been closely associated from a sanitary standpoint.

The number of houses in the City of Montreal is estimated at 54,500. In all there are, according to Mr. Cousineau's figures, 120,000 lodgings. Of these twelve and a half per cent. are occupied by the owners, that is on the average, while in some wards the proportion of owners runs as high as 7 per cent. In one ward the average is one per cent.

A Well-Planned House

"Sanitary houses are the best prophylactic means of fighting tuberculosis. Where the rays of the sun can enter and search out every corner of the house one rarely finds the deadly Koch bacillus or any other of the dangerous microbes. One of the most important ways of improving housing conditions is to make sure that there are not too many persons to a room, to a house, or to a ward. "If there is a relation between density and mortality it is not always evident." Then, referring to a particular ward of the city that is much scattered: "Despite its scattered population, Ahuntsic-Bordeaux ward has the highest mortality."

"The density of lodgings is also interesting. In Montreal there are 5.3 persons per lodging. In 1907 there were 3 7. This compares favorably with figures given for American cities. New York has a density of 15.6 persons per lodging; Boston 9.2; Cambridge 7.2, and Los Angeles 4.6."

498 Miles of Mains

Mr. Cousineau then made some general but highly interesting observations relative to the sanitary measures followed in caring for a great city such as Montreal. There is the drainage system and method of cleansing streets. Garbage removal and water supply are highly important, and to handle these requires great care in supervising. For instance, in Montreal there are 498 miles of water mains. Through these the water is continually passing to its citizens. Montreal gets its water supply only after it has gone through a process of double filtration and of sterilization by hypochloride of lime.

Mr. Cousineau's address was warmly [illegible] and a vote of thanks was tendered him. In his closing remarks he said that the problems of sanitation would become more serious as the population grew.

An interesting feature of the meeting on this occasion was that of the description, by the Chaplain of Mount St. Louis Academy, Lieut.-Col. Arthur Dubuc, of sanitary conditions at the front in France.

Court Rules Regarding Picketing

Montreal Masters Sought Injunction to Prohibit Illegal Picketing and Same Granted—Conditions Have Been Improved.

AN injunction was sought, and has been granted by the court to the Montreal Master Plumbers' Association relative to striking plumbers. This was considered necessary by the association in view of the interference which striking plumbers were causing in the execution of plumbing and other contract work. Accordingly an injunction was directed against the business agent of Local 144 of the International Union of Plumbers and Steamfitters. It was this union which definitely went on strike in October, and members of it are alleged to have interfered with the lawful activity of other plumbers engaged in following instructions of their employers. In a general way the injunction enjoins the court to cause "the defendant-respondent to refrain, as well as his servants, agents and employees. to refrain from all molestation, intimidation, interference or picketing of the plaintiff-petitioner, its corporate members and its servants or employees under pain of all legal penalties."

Request is Granted

The court, after taking the petition of the appellants under consideration, granted a writ, under date of Nov. 5, upholding the contentions of the Master Plumbers. It is therefore expected that there will be a considerable, if not entire relief from the vexatious interference complained of. Furthermore, Sanitary Engineer is informed, the restraining order will prevent, in addition to interference from the said Local 144, any interference through the action of any individual. This would mean, obviously, that such individual as exercises any interference would be liable to the extent of any or all penalties applying to a corporate body.

In discussing the matter of strike interference with jobbing work that is in progress in Montreal with members of the association relative to ployment, he told Sanitary Engineer that he has had no difficulties. He has had an ample staff right through the season and has, as a matter of fact, been able to help some of the craft out with assistance when their needs were pressing. His own work he has been able to execute without difficulty, he states.

With regard to the decision made recently relative to interference on the part of union labor officials, Mr. Latourelle is confident that this will materially improve advocates of the "open shop." "We use both kinds of labor," he stated, "and are having good results all around. I believe that other places, watching the situation here and noting the decision made, will change their views regarding these matters."

In view of the fact that there has been considerable unrest in some trade circles here, Mr. Latourelle's views are interesting and important.

Has Had No Strike Troubles

In asking Telesphore Latourelle how the situation stands with regard to em-

Enter a Protest

At its meeting this week, the Building Trades' Council passed a resolution of protest relative to the injunction proceedings directed against the United Association of Plumbers, Steamfitters and Helpers. It further decided that the matter would not be dropped by them until it was further gone into. Accordingly a special meeting has been called by them for November 25, when such action as they propose to take will be decided upon.

Important Features of Plumbing Contracts

Importance of Watching Wording of Contracts—How One Plumber Was Misled—Questions of Conflicting Nature in Specifications Should Be Referred to Architect.

Written for Sanitary Engineer by N. A. KEARNS

MOST fearful, wonderful, and weird are the contract documents that are drawn up by men of frugal spirit or warped imagination. Fearful because of the frugal conscience that sets a trap for the unwary contractor; wonderful because of the twisted imagination which prompts the glowing promises of the optimist; and weird because of technical term and legal phrase that serves only to cancel such meanings as elsewhere in a document may appear to be evident.

Now, it speaks well for the spirit of justice possessed by the normal man when, despite the entanglements of poorly written contracts, so much work is carried through to satisfactory conclusions. Nevertheless, the man who trusts more to that sense of justice than he does to a definitely worded contract may find himself at times in some very uncomfortable situations.

For instance, he may find a client whose defect of character is that of headlong optimism; such as that with which many speculative builders are blessed.

Young sanitary engineers have often suffered financial disappointments because of early experiences with these enthusiasts. In fact, it seems that plumbers are a favorite meat for monetary incompetents.

We do not mean to say that speculative builders are dishonest as a class; what we do mean to say is, that, hanging fiercely on the edge of the business world, there is a class of men who prey forever on the unwary. And because there seemed at one time to be a quick fortune in the field of speculative building, this class turned to that field for the exercise of its peculiar talents.

A young engineer sat a long time waiting for a cheque that would not come. So after many days of waiting, he grabbed his hat and rushed off to see why the cheque was so long delayed.

He found his one-time client sitting behind a nice new mahogany desk with a plate glass top.

He addressed this gent and asked him why he lingered so long with the shekels.

This estimable being removed his cigar to the other side of his face, and politely enquired, "What the —— are you talking about?" and then he continued with, "Go back and finish your job. Didn't you contract to put that plumbing in according to my satisfaction? Yes, you did. Well, the work is not according to my satisfaction."

"But," objected the plumber, "I put in a class of plumbing in proportion to the cost of the balance of the building. It is just as good, if not a little better, than the plumbing in the rest of the houses you have built on that street."

After the jerry-builder had told our friend that no coin would appear until approved high-grade fixtures were installed, the plumber wended his way to see a lawyer. Here he received the information that he had done a very foolish thing in signing a contract where the owner was given the power of referee. He was told that a referee ought to be unbiased; and that a man who had such a financial interest at stake as this speculative builder could not, in the very nature of things, see much but his own side of the case.

The moral of this little tale is that:—No contractor should sign a contract when the word "approved" appears unless that word means approved by some independent referee.

We shall not go on and tell you of the interesting times our friend had before he finally came to a settlement with the honorable "party of the first part"; but shall leave this for some other time. He collected his money all right. Some day perhaps we shall tell you how he did it.

The Wording of the Contract

It is the personal element which makes it so necessary for all prospective contracting parties to read carefully the documents awaiting their signatures.

Each word and phrase should be analyzed for one clear and definite meaning. And if more than one interpretation can be read into any part of the agreement, that part should be struck out or amended.

A man can never be too careful before he signs an agreement. The exercise of a reasonable amount of caution is the only way in which a contractor, or client, may avoid the frequent misunderstandings that are sometimes occasioned by reason of the faulty wording of the contract.

One thing that should be watched for is where the rights of the contracting parties may be inadvertently reversed by the terms of "party of the first part" and "party of the second part." The contractor—or the client, for that matter—may assume that because he is entitled to certain rights that the contract gives him those rights. So, he signs the contract, believing himself to be the party mentioned as having such, only to find later that those rights belong to the other party to the contract.

Various associations of engineers, contractors, architects and lawyers have, with more or less success, endeavored to devise standard forms of contract. These standard forms, when taken separately, are, as a rule, pretty well worded documents; but—and here is the rub—when these same standard documents, as of a necessity, are used conjointly with the general specifications, their merits may be destroyed because of the contradictions of the specifications.

Plans and Specifications

Plans and specifications are usually considered as forming part of the contract documents; but unless the signed contract states this to be so, the contract is worthless in so far as the requirements of the plans and specifications may be concerned.

The standard form of contract is usually the result of a good deal of careful and analytic thought. The same thing can not be said for the specifications when they come from the office of a certain type of architect: the architectural fakir.

In the architectural profession there is a type corresponding to that of the quack in the medical profession. A man of this type is very much of a composite of the quack and of the shyster. He quacks in the most industrious way so that he may publish the fact that he will do work for less than a fair fee; but he speaks mighty low and soft while his shystering abilities function.

Fortunately few architects belong to the class we have mentioned, nevertheless, there are some architects of this type, so it is always well for a contractor to consider what type of man is to be appointed referee, and is to interpret the ambiguous parts of the specifications.

You may be sure that when an architectural fakir compiles a specification that specification will be written in a way that may mean many things or may mean nothing. Once in a while he may not know just what to specify so he sticks in such words as "approved, equal to, proper," and "as directed." Where such words appear the wording of the specifications should plainly state whose approval and direction is to be understood.

Where the owner of a building attempts to act as the superintendent of construction, the words "satisfactory to" should be struck out of the specifications What might, in the eyes of an experienced builder appear to be very good work, might in the eyes of the amateur appear to be anything but satisfactory.

(Continued in next issue)

Ten Per Cent. Price Reductions Expected

Montreal.—"After the turn of the year I expect that there may be a reduction on sheets and galvanized iron, and like products of perhaps ten per cent." This was the comment of a prominent official of a large manufacturing firm when speaking this week with Sanitary Engineer. "But before that date I do not expect a great deal of change for the better."

This executive stated that there has been some price-cutting for several weeks but that there will be cessation of this, the war not finding favor with those who have been selling for little or no profit. But the beginning of the year, he thinks, should bring a favorable change. In the first place there is now, and will continue to be a restricted sale for these lines. That will mean a gradually improved condition as to supplies. Lower prices on basic steel will be another big factor that ought to reflect in this market by that date; perhaps sooner. A change for the better, at any rate, is due about the above date.

FOREIGNERS NOT ONLY OFFENDERS AGAINST SANITARY LAWS

Hamilton, Ont.—"There is no need to call attention particularly to foreigners' unsanitary conditions, Canadian-born and English-speaking people's unsanitary conditions are just as bad and in many cases much worse," stated Dr. Roberts, M.O.H. The doctor stated that in ten year the foreign population's housing conditions had advanced 500 per cent., while there were many cases, "not a stone's throw from the City Hall" of English-speaking and native born people, whose unsanitary conditions were equally as bad as the foreigners'.

"The foreigners are more difficult to handle," continue the M.O.H. The conditions under which they live in their own countries are such that here after they have made some improvements they believe they are being persecuted when we insist on the Western civilization idea of sanitation. We do not, however, concentrate on the foreign population. We inspect the city as a whole and our present staff of six inspectors is not enough to cope with the growing needs of the city."

The doctor pointed out that last month alone 2,622 inspections had been made and over 100 improvements had been made.

St. Stephen, N.B.—General contract for erecting axe factory costing $50,000 for Mann Axe & Tool Co., Ltd., is placed with H. K. Ferguson Co., Ltd., Temple Building, Brantford, Ont.

Toronto.—Additional contract awarded for office building and apartments costing $20,000 for Watt Milling & Feed Co., 363 Royce Avenue: Plumbing, Robert Patterson, 907 Keele Street.

QUESTIONS AND ANSWERS

WHAT IS A CALORIE?

"Editor, Sanitary Engineer.

"Dear Sir,—Would you please tell me what a calorie is and what relation it bears to the British thermal unit?

"I have a number of books on heating and ventilating in which I find a continual reference to the calorie and to the calorific value of fuels, but in no place in these books can I find what a calorie means.

"NOVICE."

Answer.—The calorie is the unit of heat used in connection with the metric system of measurement. It is the quantity of heat required to raise one gram of water one centigrade degree in temperature.

The calorie is equal to 3.96832 British thermal units.

* * *

TWO SMALL BOILERS OR ONE BIG ONE

Editor, Sanitary Engineer:

"Dear Sir,—I have a question that I wish to ask you, but first of all I want to state how this question has come up.

"A building is being erected here and there is to be 6,000 square feet of radiation put in it. Two boilers have been specified, each with a capacity of 4,000 square feet.

"A representative of a boiler concern has come along with the statement that it will be better policy to put in one big boiler instead of the two.

"He claims that one boiler can be installed cheaper than the two boilers and that less fuel will be burned in one boiler.

"He says that less fuel will be burned and that the janitor will have less work to do with one boiler.

"What do you think about it?"

Answer.—There are many reasons why the installation of the two small boilers will be superior to an installation of one large boiler. The statements of the representative of the boiler concern should not be taken too seriously. The claims he makes do not agree with the facts. Perhaps one large boiler can be installed for less money than it will cost to install the two boilers, but this is his only statement that has foundation in fact.

We recommend the installation of the two small boilers for the following reasons:

In case of a breakdown there is little danger of both boilers being out of commission at the same time.

One boiler, alone, may be run for the greater part of the heating season.

Your janitor will find that it is easier to run the small boiler at a high rate of combustion than it is to run the larger boiler at a slow rate.

A high rate of combustion will give a high rate of evaporation per pound of coal. Does this not indicate that some fuel will be saved over that which would be required with a slow-combustion boiler? We think it does.

A steady steam pressure may be kept on the building by having one boiler going full blast while the other boiler is being cleaned.

More coal can usually be put on the grates of two 4,000 ft. boilers than can be put on the grates of one 8,000 ft. boiler, thus lengthening the time between firing periods.

Catalogues and Booklets

POSITIVE CIRCULATORS FOR HOT WATER HEATING SYSTEMS

The Atlas Engineering and Machine Co., Ltd., 23 River St., Toronto, Canada, have issued a bulletin describing their No. 3 size of circulator to be used on hot water heating systems.

It consists of a pump having a cone-shaped rotor. The pump is driven by an electric motor through a flexible coupling.

The circulator is usually installed in the main return line of the hot water heating system close to the boiler. When the motor is in operation the circulator forces the water through the system at a rapid rate, so that hot water from the boiler is carried up to the radiators with the loss of only a few degrees in temperature, and also forces water into distant radiators, where it is sometimes difficult to get gravity circulation. When motor is not running the water circulates through the pump as if it were a plain elbow.

It is stated that hot water is the best medium for heating, but the initial cost of installation has been high compared to steam, but by using a positive circulator the cost is the same, as a large reduction is made in radiation and pipe as compared with gravity hot water.

Positive circulators are made in three sizes at present and the makers will be pleased to give readers of Sanitary Engineer information and advice regarding installations.

CONTRACTS AWARDED

Ottawa.—W. J. McGuire, Ltd., of Toronto and Montreal, was responsible for the plumbing, heating and installation of the automatic fire extinguishers in the local Loew's theatre.

INSTAL PUMP TO RELIEVE SEWAGE PLANT

New Toronto.—A proposal to instal a pump with a capacity of 1,500 gallons per minute, at a cost of $10,000, to relieve the trouble in the local sewage disposal plan due to Hydro shortage has been referred to the joint water and sewage committee of Mimico and New Toronto.

Plumbers' Overhead Charges Comparatively Low

Costs Must First Be Considered in Figuring Profit—Average Gross Profit in Plumbing Shops Much Less Than Many Other Lines of Trade—23.3% is Average Overhead of Plumbers in 1919

Editor's Note:—Herewith is the third lecture of a series prepared by the National Trade Extension Bureau of the U. S. in considering various phases of the plumbing business. This instalment deals largely with discussion of plumbers' profits compared with other lines of business. The lecture is reproduced in the form in which it is supplied to master plumber organizations throughout the United States, where it is read before such organizations by some one member. It contains a great deal of very useful information to the trade in Canada as well, and, furthermore, gives some idea of the service which may later be rendered by a similar organization in Canada.

AS an introduction to this subject of comparative profits, perhaps it would be best to briefly discuss just what profits consist of. When thousands of business operators have answered this question in a way that spelled, for themselves, ruin, business men can expect but little from the buying public, in proper recognition of the true meaning of fair profits.

Profit is not interest on the investment. Profit is not the salary received for managing a business enterprise. Profit is not the money made working with tools, or acting as foreman or superintendent.

All of these are items which the proprietor should properly receive as the investor, manager or worker in the business.

Profit can only be the owner's final net return for the risks taken in providing for the wants of his customers and community. There is no profit until money is made over and above all of the recognized costs of operation.

Therefore, before any chance exists to figure profits, costs must be accurately decided. One of the important elements of cost—which largely keeps prices high or allows for a low cost to the public is fixed charge, or overhead expense, as many term it. By use of authentic data we are able to show that this burden—which must necessarily rest finally upon the pockets of the buyer—appears lower in our industry than in other lines of business.

We have all enjoyed thorough training as mechanics, but, as a rule, our business training has been sadly neglected. Many of us have had no way of developing our individual business methods, except from personal experience. Of course we pick up a few pointers now and then from our competitors, but not many. Business men still often jealously guard business secrets even though in this modern age such practice is not only foolish but a detriment to one's own business. This is an era of co-operation. We are beginning to see that the success of any business does not necessarily depend on the failure of its competitors.

Some of the data which we have at hand has been compiled by the Bureau of Business Research and other expert gatherers of business facts. After making an analysis of the operations of several thousand mercantile and manufacturing concerns in various lines and localities, these authorities are in a position to give information which stands out as an indisputable criterion for you to point to when you are present at discussions of the subject of gross profits, net profits, overhead, cost and turnover, which are all vital elements of industry operated for gain. Therefore, we shall quote from their survey.

We know of no more convincing way to give you men the benefit of such dependable information than by placing some of these figures upon the blackboard, so that you can copy them and use them in every day business practice when your price is questioned by a customer.

As a result of this research work, they tell us that the figures which I have placed on the blackboard represent the average gross profits of these various mercantile lines. Thus, these figures include overhead and profit.

(NOTE: Have these figures on the blackboard before the meeting and then read them from the board.)

Hardware merchant ....28 per cent.
Dry goods merchant ...30 per cent.
Clothing merchant .....29 per cent.
Furniture .....33 per cent.

HOW TO FIGURE PROFITS CORRECT

Compliments of the National Trade Extension Bureau, 4th Floor, Mercantile Bank Bldg., Evansville, Indiana

A table showing the decimal multiplier to use for ascertaining the selling price which must be secured to produce any desired net profit on selling price.

Class	Annual Volumn of Sales	Overhead % on Selling Price	PERCENTAGE OF PROFIT YOU DESIRE ON THE SALE											
			5%	7½%	10%	12½%	15%	18%	20%	25%	30%	35%	40%	50%
A	7500	30			1.67	1.74	1.82	1.92	2.00	2.22	2.50	2.86	3.33	5.00
B	10000	29½			1.65	1.72	1.80	1.90	1.98	2.20	2.47	2.82	3.28	4.88
C	15000	28½			1.63	1.70	1.76	1.87	1.94	2.15	2.41	2.74	3.17	4.65
D	20000	28			1.61	1.68	1.75	1.85	1.92	2.13	2.40	2.70	3.13	4.55
E *	25000	27			1.60	1.65	1.72	1.82	1.90	2.08	2.33	2.63	3.03	4.35
F	35000	26½			1.57	1.64	1.71	1.80	1.87	2.06	2.30	2.60	3.00	4.25
G	50000	26			1.56	1.63	1.70	1.80	1.85	2.04	2.27	2.56	2.94	4.17
G-a	60000	25			1.54	1.60	1.67	1.75	1.82	2.00	2.22	2.50	2.86	4.00
G-b	65000	24			1.52	1.57	1.64	1.72	1.80	1.96	2.17	2.44	2.80	3.85
H	75000	23			1.50	1.55	1.61	1.70	1.75	1.92	2.13	2.40	2.70	3.70
H-a	85000	22			1.47	1.53	1.60	1.67	1.72	1.90	2.08	2.33	2.63	3.57
H-b	90000	21			1.45	1.50	1.56	1.64	1.70	1.85	2.06	2.27	2.56	3.45
I	100000	20			1.43	1.48	1.54	1.61	1.67	1.82	2.00	2.22	2.50	3.33
I-a	110000	19			1.41	1.46	1.52	1.60	1.64	1.80	1.96	2.17	2.44	3.28
I-b	120000	18			1.40	1.44	1.50	1.56	1.61	1.75	1.92	2.13	2.40	3.23
I-c	130000	17		1.32	1.37	1.42	1.47	1.54	1.60	1.72	1.90	2.08	2.33	3.03
I-d	140000	16		1.30	1.35	1.40	1.45	1.52	1.56	1.70	1.85	2.06	2.27	2.94
J	150000	15		1.29	1.33	1.38	1.43	1.50	1.54	1.67	1.82	2.00	2.22	2.86
J-a	175000	14		1.27	1.32	1.36	1.41	1.47	1.52	1.64	1.80	1.96	2.17	2 80
K	200000	13½	1.23	1.27	1.31	1.35	1.40	1.46	1.50	1.63	1.77	1.94	2.15	2.74
K-a	225000	13	1.22	1.26	1.30	1.34	1.40	1.45	1.50	1.61	1.75	1.92	2.13	2.70
L	250000	12½	1.21	1.25	1.29	1.33	1.38	1.44	1.48	1.60	1.74	1.90	2.11	2.67
M	300000	11½	1.20	1.23	1.27	1.32	1.36	1.42	1.46	1.57	1.71	1.87	2.06	2.60

*NOTE—Find the line that indicates your percentage of **overhead.** If you do not know your **actual overhead,** find the line that indicates the **volumn of sales** you had last year. Then find the column that indicates the percentage of **profit** you desire; trace down this column to where it meets the line indicating your **overhead or volume of sales.** Multiply your **cost** of labor and material by the figure shown in the box where these meet. The result will be the required **selling price.**

PUT THIS IN YOUR PRICE OR ESTIMATE BOOK.

Jewelry .....35 per cent.
Shoe merchant .....25 per cent.
Automobile sundries..33½ per cent.
Lamps and lighting ....30 per cent.

While this relationship of expense, cost and profit to gross sales represents a condition preceding the war, for the figures were compiled at that time, yet it serves well for the purpose of comparison. It might also be added here that these ratios since then have probably been influenced by war inflation until they are much higher today. Still they stand out as a basis of expense cost in the various mercantile lines in our country from which we can draw comparisons.

Now similar research work conducted by the Heating and Piping Contractors' National Association, the National Trade Extension Bureau and the National Association of Master Plumbers proves that, prior to the war, the average gross profit for all classes of plumbing and heating shops was greatly less than any of the foregoing figures. The chart hanging here on the wall, and the small one handed to you this evening, gives you the figures for overhead and profit established in 1919 in all sizes of plumbing and heating establishments.

You will note that overhead based on selling price ranges from 30.2 per cent. in the smallest shops down to 12.4 per cent. in those doing $250,000 per year.

Adding together all of these various percentages for overhead, for the twelve classifications shown on the chart, shows a result of 279.9. Dividing this by 12, to strike an average, we get a result of 23.3. Therefore, 23.3 per cent. is the average overhead based on selling price for all classes of plumbing and heating shops during 1919.

I think we will all agree that 10 per cent. clear net profit on cost plus overhead is all any of us would expect or dare to figure on.

Figuring 10 per cent. on cost, including labor, material, and overhead, gives practically the same result as figuring 9.1 per cent. on selling price. The calculation for proving this is too long and complicated for our present time and purpose; but it is evident to anyone who has had experience in figures.

Now, when we add 9.1 per cent. for profit to 23.3 per cent. for overhead, both based on selling price, we get a gross profit of 32.4 per cent. as an average for the plumbing and heating industry.

Therefore, a glance will show that the figures for our industry in the present time after the war compare very favorably indeed with before the war figures for other industries.

The point which we wish to make here is, that when a fair comparison is made of expense cost and net profits, the fact comes out beyond dispute that the public pays as little or less for these elements when buying our service as they do when buying, for example, hardware, clothing, dry goods, items of merchandise from department stores, furniture, jewelry, etc.

Now, let us proceed a step further so that we may thoroughly understand this question of fixed costs. For unless we thoroughly understand the subject ourselves, we cannot hope to explain it to the satisfaction of others.

One of the questions appearing on the list handed you this evening is: "What is fixed cost or overhead?" Let us answer this question in this way: All items of expense—or money that you must pay out to conduct your business—which are not directly chargeable to any particular job, or that are not chargeable as material and labor on the job or sale. Therefore, a share of the combined total of these items must be added on a percentage basis into every sale made.

(NOTE: Put the following figures on the blackboard.)

As an example: You draw a salary of $200 per month, and your telephone costs you $10 a month. This means that you must add $2,520 to the year's cost of labor and material before you can break even on the year's sales. Of course, this whole amount cannot be added to any one job or even scattered over a dozen jobs. Therefore, to determine the proper portion of this expense to charge to each sale or job, the expense must be divided over the yearly sales—which last is generally termed yearly volume of business.

Thus we are compelled to find a percentage unit which can be used as a basis of measurement for this expense on each job or sale. For only in this way can we get back from each sale a definite and fixed part of our operating cost.

A percentage is the unit of measurement most commonly used.

Its base of measurement is one hundred. In other words, when we say 25 per cent. overhead, we mean that 25 cents of every one dollar sale is overhead.

More people than you can realize do not understand the use of percentage. It is, therefore, essential that we point out in a brief, understandable way just how percentage can be explained.

Before doing this, however, we must thoroughly understand the question: "What is meant by yearly volume of business?" Perhaps, I can more clearly explain this subject by discussing the chart.

Volume of Business	Total Amount Charged on Books For	Job Work	($1,000.)
		Time and Material Work	($1,000.)
		Percentage Work	($1,000.)
		Plumbing Contracts	($1,000.)
		Heating Contracts	($1,000.)
		Water System Installations	($1,000.)
		Other Installations or contracts	($1,000.)
		Store Sales	($1,000.)
		Shop Sales	($1,000.)
		Labor Charges	($1,000.)
		Service Charges	($1,000.)
		Rental of Tools or Other Equipment	($1,000.)

This method of presenting a subject is known as charting, and has been adopted by all up-to-date business establishments, for the reason that it tells a short yet complete story in the way most easily understood. In other words, it quickly pictures the thought that you are trying to convey. By following me you will understand that charting is a simple, yet quick, method of thoroughly analyzing every question that comes up in ordinary business.

As an example, the question that we are about to dissect, that of volume of business, means, as indicated in this next box, the total amount charged on your books for:

First, jobbing work, which is all classes of repair work. The second box represents time and material work, which is self-explanatory, and which you understand means new installation or remodelling work where the owner is charged at the regular retail price for the actual material used and the time required to install the material.

The third box indicates percentage work, which is virtually a contract between yourself and the owner whereby you agree to furnish all of the labor and material necessary to do a given job at the cost price to you, plus a fixed percentage for your overhead and profit.

Box four indicates plumbing contracts, and represents all charges made on your books for this class of sales. Heating contracts are placed in a separate box merely to indicate that this too is a part of your total volume.

The same is true with water system installations, other installations or contracts, store sales, and shop sales. Labor charges represent charges, other than jobbing work, time and material or percentage work, where labor only was sold. You cannot afford to do very much of this class of work as we shall learn in one of the lectures that will follow.

The next box indicates service charges and covers services that you render, such as making heating plans, estimating fire losses and appraising property. Some contractors render such service free of charge. This is foolish and unbusinesslike. Do you believe your customer or architect would render you a like service without charge? I am sure they would not. Then why should we be so liberal?

The last box indicates rental of tools or other equipment. This is indicated in this chart so that you may actually see that such charges are essential to conducting a successful business. Tools should not be loaned even to your best friend without charging him for the use of same, unless he is the kind of friend that would loan you his money or his automobile without charge.

You, of course, can go more into detail on this subject if you so desire.

Perhaps it would be a bit interesting at this point to go a step further in order to show you how important it is to chart each section of your business.

(Continued on page 28)

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

Article No. 20 of the Series—Illustration No. 27

(Continued from last issue)

FIGS. 26, 27, 28, and 29 illustrate the plan, longitudinal and cross-section of sedimentation tank preceded with a small grit screening and overflow chamber suitable for treating the sewage from a population of 250 or 300 people. The screening and overflow and grit chambers are very similar to the type of construction previously described, and show the necessary gates for closing down the works. The sewage, after screening, passes over a weir into the main sedimentation tank running the full width of the tank and then passes through the tank where the suspended matter is deposited and the clarified effluent passes off over a similar weir into the filtration area. Both of these weirs are protected by wooden scum boards, the construction of which will be outlined in a later issue, let into channel irons built into the brickwork.

The inlet end, being the outlet of the sludge and the location where the greatest amount of sludge deposits, is the deepest end and is constructed with sloping concrete tank bottom at an angle of 45 degrees to a central sump provided with a plug valve.

Brick pigeon holed baffle walls are built into the tank as shown, to assist the settlement of suspended matter and the longitudinal fall of the tank bottom along the central sludge chamber should not be less than 1 in 20.

A 9 in. pipe with valve should be constructed in the outlet overflow weir at as low as elevation as possible, so that the upper surface of the liquid in the tank has to be emptied for cleansing purposes, otherwise the whole liquid contents would be discharged through the sludge drains on to the sludge drying beds which, if possible, should be avoided for the efficient working of the sludge beds.

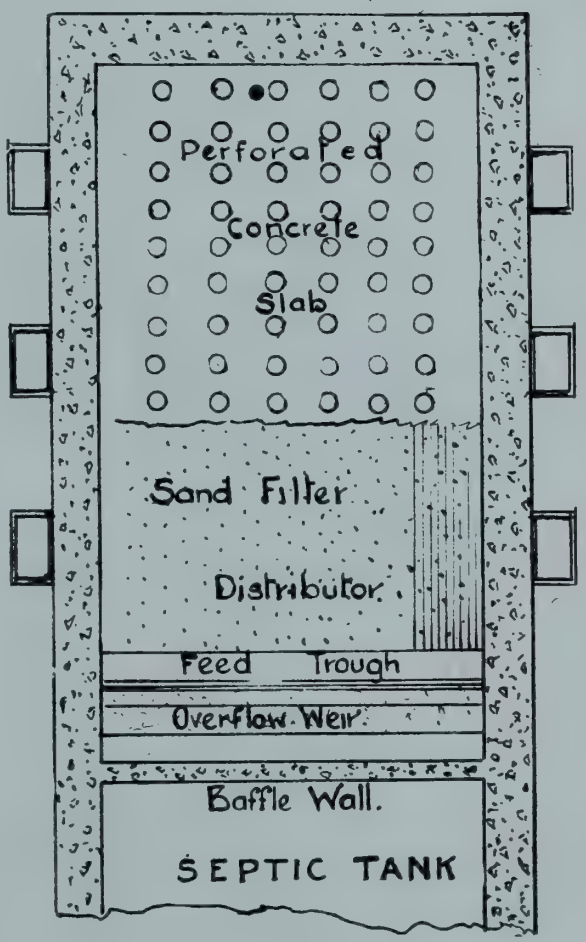


FIG. 27.

EDITORIAL COMMENT

CLOSING INSANITARY PREMISES AN EFFECTIVE MEASURE

THE closing of insanitary premises in the city of St. John, N.B., and the recommendation of similar action by the Boards of Health of other cities, marks an important step in enforcing conditions toward which many bodies are working. Cutting off the rent revenue from such properties is the surest way in which to enforce local sanitary regulations. Particularly at this time when there is a great scarcity of housing accommodation in Canada and many people are forced to live under conditions which they otherwise would not stand for, landlords are wont to disrespect local sanitary laws with the knowledge that he can get his rent without this outlay. The very same argument has been advanced in councils of our cities and towns as an argument against closing such habitations, and it is therefore interesting to note that in some cases at least the matter has been taken up seriously and improvement demanded.

PLUMBER HAS GOOD ARGUMENT

PRESENT market conditions in most commodities are unprecedented. The buyers have tightened up particularly in so far as the buying of unnecessary lines is concerned. The period of extravagance which immediately followed the war has ceased and in its place there is a tendency towards watchful waiting for lower prices. The price cutting campaign as recently waged has started the ball rolling to bring prices to a more normal level. Naturally prices on so-called luxury lines, which were much inflated due to reckless buying, have much further to fall than prices on such necessary lines as plumbing and heating goods. Nevertheless the pricking of the bubble of speculative prices on some lines has produced a condition of nervousness in the market for all commodities and the plumbing and heating engineer must solve the problem on its merits.

Peope are waiting to buy until they know that values are somewhere near a normal level. A review of the price tendency on plumbing goods indicates several things. In the first place the downward revision of prices is very gradual on what lines are affected this way, and on other lines there is as yet no indication of price reductions. The labor tunover cost is also lighter because the plumber does not make as large a net profit as do most other lines. Under this condition it behooves the plumbing and heating engineer to use every means of pointing out to customers what the actual conditions are, and, in so far as plumbing lines are necessary, it is poor economy to continue to postpone buying in the anticipation of large price reductions, particularly if it is a case of "saving at the spigot and washing at the bung-hole."

PLUMBERS WATCH BUYING TENDENCIES

IT IS significant in view of the price reductions which have been made in practically every other branch of trade, in an effort to stimulate business, that prices on most plumbing lines have remained firm and have advanced this week on such an important line as enamelware fixtures. While prices on basic materials such as pig iron have been dropping recently, Canadian manufacturers of enamelware, pipe, fittings, etc., have been working on the basis of materials purchased a year or so ago when prices were much below to-day's quotations. These manufacturers now being forced to buy materials at to-day's prices find it difficult to reduce prices, especially in view of the fact that such overhead costs as labor are remaining high. That many property owners are coming to realize that lower prices on most plumbing lines will be slow in coming is evident in the fact that plumbing and heating trades are showing little signs of slackness. Heating installation work should be available in good volume this winter to be followed by an expected revival of building in the spring. Meanwhile plumbing and heating engineers will be well advised to keep in close touch with new developments in the market and in current events which may be factors in guiding the buying policy during the next few months.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

DISCONTINUES BUSINESS

Toronto.—R. G. Coupland is discontinuing his plumbing business here.

NEW FIRMS

Montreal.—Beck Bros. have been registered to carry on the business of plumbers, etc., in Montreal.

Walkerton, Ont.—Elmer Eberth, of Hanover, has opened a tinsmithing and plumbing establishment in connection with McCarters' hardware and harness shop.

RECEIVES CONGRATULATIONS

Toronto.—A bouquet of lilies was presented to Business Agent "Bill" Storey, of the Plumbers' and Steamfitters' Union, with the congratulations of his friends at the Labor Temple on the occasion of his fiftieth birthday.

DEATH OF G. M. ARNOLD, ONTARIO BOILER INSPECTOR

Mr. G. M. Arnold, for the past ten years Ontario Government Inspector of Boilers, is dead. Mr. Arnold, who was very widely known and highly esteemed, had been, previous to his government appointment, for some twenty years with the Niagara Navigation Company. He leaves a wife and three children.

PERSONAL

The marriage of Miss Lena Blanche Hall to Mr. C. Harvey Fuller, City Engineer of Chatham, Ont., and late captain in the C.E.F., took place last week at St. Alban's Cathedral, Toronto.

M. E. Brian, city engineer of Windsor, Ont., addressed the local Real Estate Board at a recent luncheon. His address consisted of an outline of the different methods citizens can take, under the Local Improvement Act, to secure sewer, water, lighting facilities, etc., from city or township councils.

A. W. Shaw has resigned the position of superintendent of the Water Works System, Brandon, Man., after twenty years' service in that capacity, to accept the position of chief engineer of the hospital for the insane at Brandon. Previous to taking over the superintendence of the water works system at Brandon in 1900, Mr. Shaw was connected with engineering activities in Toronto.

WESTERN ONTARIO NEWS

Tenders will be called for shortly for a new sewer in Wigle Avenue at Leamington, Ont.

* * *

William Krug has tendered his resignation as chairman of the Board of Health at Chesley, Ont.

* * *

Durden and Orfer, sanitary engineers and steamfitters, have opened premises at 124 Victoria Avenue, Leamington, Ont.

* * *

French & Co., 202 Dundas Street, London, have leased new premises, which will be remodelled and a new heating system installed.

* * *

Ex-Alderman John S. Saunders, chairman of the Board of Health at London, Ont., contemplates running for the mayoralty in the coming elections.

* * *

Fred Colville, of Wallaceburg, Ont., has shown his sympathy with the project to establish a new war memorial hospital there by donating one week of his time in connection with the plumbing work.

* * *

Estimates will be prepared at once and a by-law submitted to the ratepayers at Wingham, Ont., for providing an additional well for waterworks, laying new mains and increasing the capacity of the reservoir.

* * *

As a result of representations made by the Business Men's Association at Forest, Ont., the town council has decided to submit to the ratepayers in January a by-law to provide for the installation of a waterworks system.

* * *

The Board of Water Commissioners at St. Thomas, Ont., is having plans prepared for a new storage dam to cost $250,000 and contemplates greatly extending the waterworks distribution system to take care of new homes to be erected in the factory district.

* * *

The city council of London, Ont., has passed by-laws authorizing the construction of a sanitary sewer system for West London at a cost of $520,000 and an extension to the sewer on Wellington Road to cost $75,000. Work on these will be proceeded with at once by City Engineer Harry Brazier.

BATHROOM OUTFIT ON DISPLAY

Port Dalhousie, Ont.—A. H. Jones, local plumber, is planning to have on inspection at his store a complete bathroom outfit to assist in selling complete sets of such installations.

CONSIDERABLE ADVANCE FOR WATER RATES

Toronto.—This city during the past ten months of the present year has collected $273,934.66 more in water rates than for the same period last year. The amount to date this year totals almost $2,620,000. The estimated revenue for the ten months' period this year is $2,838,366, and of this amount $218,662 remains to be collected.

JOINT WATER WORKS SYSTEM FOR BORDER MUNICIPALITIES

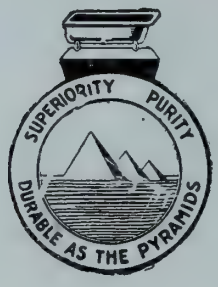
Windsor.—The City Council will be asked by the Finance Committee at the next meeting to authorize the preparation of the by-law for submission to the ratepayers at the municipal elections in January respecting the plan of the Essex Utilities Commission to take over Windsor and Walkerville waterworks for a joint system to serve all border municipalities. The project, it is estimated, will involve an ultimate expenditure of approximately $1,800,000.

RENFREW HOUSES TO HAVE SEWER CONNECTIONS

Renfrew, Ont.—At a session of the council a communication in the shape of a resolution was received from the board of health. Their communication stated that in view of the great number of outdoor closets and the fact that recent legislation gives the municipality power to instal sewer connections it was recommended to council that all outdoor closets where sewer connection is available be done away with.

In case a house owner has not the money required to instal plumbing in his residence the council was authorized, under the amended regulations, to do the work for him, raising funds for the purpose by the issue of debentures, this to be paid back by the owner in five yearly instalments with 5 per cent. interest added. Making such sewer connections will not only tend to improve general sanitary conditions but will mean increased revenue to the town in the shape of water rates.

Big Building Prog



THE quiet building conditions that prevail at the present time will be followed by one of the busiest seasons we have ever had. Shrewd business men are laying plans for a very prosperous year's business.

Current conditions are mostly due to a mental wave that is riding on the minds of some people who each day look for the bottom to drop out of the market to-morrow.

This situation will soon reverse itself and is only temporary; the unsupplied building needs in Canada will prevent any sustained depression.

It is conservative to say that with the knowledge that Canada is short 100,000 homes now, and that 40,000 more

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.

mme is Inevitable

will be needed to take care of the selected immigration this year, that a big building programme is inevitable.

Our Government realizes this and has appropriated $25,000,000 to erect 300,000 dwellings in Canada under the State Home Schemes.

Canadian people have more money in their savings accounts at Banks than they ever had before. This year the Canadian crops will yield $1,250,000,000, which is nearly 100% more revenue from this one source than they got last year.

There is renovating that has accumulated during the last four years to be caught up with, and with the money in the banks to pay for it the outlook for building during the coming year is bright.

fg. Company, Limited

Halifax Office :
RDY BLDG., HOLLIS ST:

Head Office :
ROYAL BANK BUILDING, TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

SUGGESTS GRAVITY SYSTEM TO OBTAIN WATER

Toronto.—A prominent engineer, who has been looking into a water supply for the possible city of North Toronto, reports that ten million gallons per day can be obtained by a gravity system.

NEW PUMPING STATION

North Toronto.—A new pumping station for the disposal of sewage from the dozen or so houses now being erected on the Chaplin estate is now being rushed on with. The tank for receiving the sewage has already been completed. This independent pumping station has been found necessary owing to the fact that the Chaplin estate is much lower than any of the surrounding land. So low is it that the present sewage system cannot take it.

ISLINGTON AND LAMBTON ARE OUT OF WATER AREA

Islington.—At the request of some of the ratepayers from Islington and Lambton, Etobicoke Township Council at its meeting here removed both places from water area No. 1. A year ago when a number of the wells around Lambton began to go dry a strong agitation was commenced for a public water system. When the wells filled up again the agitation subsided and a counter agitation grew up. Now it is reported that the water is getting low again.

PLEBISCITE ON WATER

The plebiscite will be taken on a waterworks system for Port Credit, Ont., at the January elections. If the vote is in the affirmative a by-law for issuing debentures to raise the required sum will be prepared. The property owners of the town will then vote on it.

The cost of the plant will be over $100,000, but the exact amount has not yet been made public. The proposed scheme is to pump water out of the lake, have a filtering plant and distributon system, much the same as in New Toronto.

CITY TO ENFORCE LAW IN REGARD TO SEWER AND WATER

Moose Jaw, Sask.—The old question of whether or not the owners of houses which front upon sewer and water lines should be compelled to instal this commodity was again before the city council. It came up when the city commissioners asked the council to decide what should be done relative to a number of house owners who had been notified to put the water in and had neglected to do so. Commissioner Mackie outlined the situation to the council and pointed out that if the waterworks of the city was ever to be put on a paying basis it was necessary to obtain all the users of water that it was possible to obtain.

BUILDING CONSTRUCTION

Galt, Ont.—The school board contemplate the erection of a small school to cost about $20,000.

Cobourg.—Work has started on a building 160 feet by 52 feet, which is being erected at the Langslow-Fowler Furniture Company plant here by Jex & Co.

London, Ont.—Charles Burkhart, of Amherstburg, Ont., has commenced excavating for a new $6,000 bungalow and is interested in prices of heating and plumbing.

London, Ont.—Jesse Jones, 439 Maitland Street, London, Ont., is preparing plans for a new residence to cost $10,000 and wants prices on plumbing, heating and electric lighting.

London, Ont.—Wm. J. McCullough, 265 Regent Street, London, Ont., is preparing plans for a bungalow to cost $6,000 and is interested in prices of heating and plumbing, also electric lighting.

Toronto.—Building permits issued include the following: Plans for Child's restaurant at 13-17 King Street West have been filed for approval. The cost is estimated at about $300,000. A synagogue at 23 Henry Street, which will cost $120,000.

TENDERS

Toronto.—B. Schwartz, architect, 336 Dundas Street West, is preparing plans of three stores with apartments over to cost $27,000 for Mr. Kirsh.

Toronto.—George A. Morgan, 875 St. Clair Avenue West, will receive tenders for electrical work, heating and plumbing for garage costing $50,000.

BETTER WATER SUPPLY FOR MOOSE JAW

Moose Jaw, Sask.—The city is approaching the coming winter with prospects of a better water supply than ever in its history, according to Commissioner Engineer G. D. Mackie. Mr. Mackie stated that he believed there was no reason why the citizens should not have a continuous 24-hour service this coming winter.

Some interesting figures as to the consumption of water in the city during September, which show that with water available the citizens have used much more than they did in the same month last year, were given out by Mr. Mackie.

During the month of September this year the total consumption for all purposes was 30,236,000 gallons, while in September of last year the consumption was only 21,507,000 gallons, an increase of 8,729,000 gallons.

The total consumption in September this year was equal to a daily average of 1,008,000 gallons, as against 717,000 gallons in the same month last year, an increase of 291,000 gallons per day. This September the citizens were given a full 24-hour service, while last September the service was limited, the water being shut off from 7 o'clock in the evening.

NEW WATERWORKS AND SEWERAGE PLANS

Shelburne, Ont.—E. A. James Co., Ltd., engineers, Toronto, have been instructed to prepare plans for additions to waterworks system, which will include increased supply by a gravity system for town.

Sombra, Ont.—Sombra township council has instructed Geo. A. McCubbin, engineer, Chatham, Ont., to make report on tile drainage contemplated and also on improvements to existing drains. W. A. Scott, clerk, R.R. No. 3, Sombra.

Calgary, Alta.—Geo. W. Craig, engineer, is preparing plans and estimates for watermains to cost $100,000 for city. By-law will be submitted to ratepayers December 15th.

London, Ont.—Work will be done by day labor under supervision of City Engineer H. A. Brazier on sewer extension costing $75,000 and sewer system costing $300,000 for city.

CONTRACTS AWARDED

Winnipeg.—Carter-Halls-Aldinger Co. have secured general contract for the erection of a deaf and dumb institute at Tuxedo at a cost of $621,000.

Montreal.—Conroy Bros., 291 Centre Street, Montreal, Quebec, have opened a branch shop and office at 866 St. Catherine Street. Following herewith are some of the jobs they have on hand: For P. Monahan, 171 Rozel Street, alterations to plumbing and heating, $1,100; for D. Lorne McGibbon, 27 Ontario Avenue, alterations to plumbing and heating sysetms, $6,000; for D. Watson, 2 MacGregor Street, plumbing and heating, $2,500; Bank of Montreal, Second Avenue and St. Catherine Street, plumbing and heating, $4,000; 26 houses at Model City for Mt. Royal Housing Co., plumbing and heating, $21,000; Loew's Theatre Francais, St. Catherine Street East, plumbing and heating.

PLUMBING, WATER WORKS AND BUILDING CONTRACTS AWARDED

General contract for construction of sewers costing $6,435 in five streets for York Township is awarded to A. Cavotti, Euclid Avenue.

Toronto, Ont.—R. H. H. Blackwell, 64 St. George Street, has general contract for construction of 6-inch water mains in seven streets for York Township.

Antigonish, N.S.—D. R. Morrison & Son, Spring Street, Summerside, P.E.I., have general contract for erecting a building costing $40,000 for St. Martha's Hospital.

Port Dalhousie, Ont.—Contracts for sewerage system costing $30,000 for town are: Laying sewers, R. M. Smith, 58 Howard St., Toronto; sewer pipes, Clay Products Agency, Ltd.

Courtenay, B.C.—Additional contracts for school costing $47,000 for Provincial Government Department of Education

are: Plumbing, R. J. Nott Co., Ltd., Yates St., Victoria.

Toronto.—W. T. Ward has contract for heating of club house costing $18,000 for Primrose Club.

Howell, Sask.—J. A. Tremblay, Howell, is building a convent costing $80,000 for Les Filles de la Providence.

Strome, Alta.—Charles Hancock has general contract for erecting a community hall costing $6,000 for village.

Glace Bay, N.S.—General contract for erection of Y.M.C.A. costing $60,000 is placed with Don McInnis, Glace Bay.

Hartland, N. B.—Henry Post, Woodstock, N.B., has general contract for erecting a bank at cost of $15,000 for Bank of Montreal.

Lachine, Que.—U. Boileau, 312 Fabre Street, Montreal, general contractor, will receive tenders on plumbing and heating for school costing $100,000.

Windsor Mills, Que.—General contract for remodelling church of Windsor Mills at cost of $6,000 is awarded to Jos. Gosselin, Ltd., 85 Dalhousie Street, Quebec.

Quebec, Que.—Electrical work contract for addition to home costing $50,000 for St. Patrick's Parish is awarded to Heating Specialty, Ltd., 42 Juror St.

London, Ont.—General contract for interior alterations and addition to building for Home For Incurables at cost of $50,000 is awarded to Hyatt Bros., 288 Egerton Street.

St. Catharines, Ont.—Plumbing work contract for Sunday School costing $35,000 for First Presbyterian Church, Church Street, is awarded to S. P. Gourlay, 31 King Street.

Toronto, Ont.—Contracts awarded for school work for Board of Education are: Ventilating, plumbing and heating, Runnymede, at $25,989 Shepard & Abbott, 119 Harbord Street.

Hamilton, Ont.—Additional contract for addition to school costing $140,000 for Board of Education is: Plumbing and heating, Adam Clark, 7 Main Street West.

Sackville, N.B.—Plumbing and heating contracts for addition to ladies' college building costing $45,000 for Mt. Allison College are awarded to McEachern & Strachan, Amherst, N.S.

Hamilton.—Additional contracts for addition to arena costing $40,000 for Abso Pure Ice Co., Barton Street East, are: Plumbing and heating, R. Fitzsimons, 21 Rebecca Street.

Toronto.—Decorative Painting Co., 21 Hillcrest Park, will do by day labor electrical, heating, plumbing and plastering work for church costing $50,000 for Jeanne D'Arc Church congregation, 14 West Lodge Avenue.

Hamilton, Ont.—Plumbing and heating contracts for alterations to building for offices at cost of $50,000 for Dominion Canners, Ltd., Landed Banking & Loan Building, are placed with Adam Clark, 7 Main Street West.

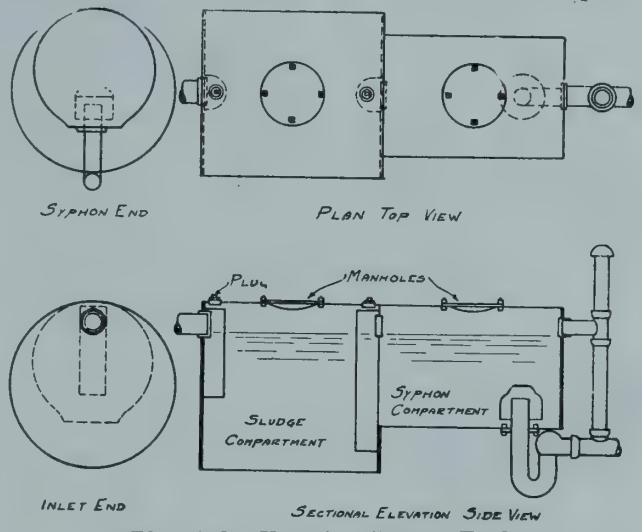
NEW PLUMBING GOODS

WITH a water supply the comforts of an up-to-date bath-room with tub lavatory and water toilet, together with handy kitchen sink and laundry tubs are now within reach of any country home and is made possible by the septic tank system of sewage disposal. In a brief review of this nature it is impossible to thoroughly describe the system of septic tank sewage disposal, but the process is one in which the solid matters in raw sewage are liquified and purified, and the process is controlled in the septic tank.

The septic tank consists of two or more compartments. The sewage enters the first compartment known as the sludge chamber, from whence, after undergoing change it passes into the effluent chamber, undergoes further changes and is discharged into the "absorption" bed. This is an arrangement consisting of open lengths of tile so laid to allow the overflow to leak through the joints and seep into the soil; this final process sterilizing the bacterial germs and rendering the resultant liquid fit to mingle with the soil again.

The Hydro-Kaustine septic tanks are made throughout of Armco ingot iron of 14-gauge thickness, seams are electrically welded, and tanks are coated inside and outside with Hermastic enamel, which makes an effective coating, impervious to moisture, acids, alkalies, salt water, and other corrosive agents. Experience has shown that it is not affected by extreme changes of temperature, and it forms a practically indestructible coating of about an eighth of an inch in thickness.

For extremely cold climates, and where, owing to slowness of flow, contents of tank are apt to freeze, the Kaustine Co. have designed a syphon type of tank which is automatic in action with no working parts to get out of order.



The Hydro-Kaustine System Tank

Kaustine septic tanks are made in horizontal and vertical styles and in different sizes suitable for various sized houses. Larger sizes for schools and public buildings such as asylums, etc., are made and plans are shown illustrating the method of equipping an entire industrial village with this system.

Hydro-Kaustine system tanks are manufactured by the Kaustine Co., Ltd., Eastern Avenue, Toronto, Ont. They maintain an engineering and service department with free service to the trade in problems involving the installation and operation of this type of sewage disposal.

London, Ont.—R. G. Wilson & Son, 193 College Street, have general contract for store costing $10,000 for English & Scotch Woollen Co., 851 St. Catherine St. E., Montreal.

Moncton, N.B.—Additional contract for bank costing $100,000 for Bank of Nova Scotia is: Plumbing and heating, Wm. Watson, 603 Main St., Moncton.

Montreal, Que.—D. Sheffer & Sons, 348 St. Urbain St., the general contractors for alterations to stores for Service Tobacco Shops, Ltd., New York, U.S.A., will receive tenders for plumbing and heating.

Additional contracts for theatre costing $500,000 for Famous Players Canadian Corp., 208 Victoria Street, Toronto, are: Plumbing and heating, A. Welch & Son, Ltd., Toronto.

Ottawa.—Additional contracts for alterations for factory costing $60,000 for Ottawa Paint Works, 687 Wellington St.: plumbing and heating, McKinley & Northwood, 56 Rideau.

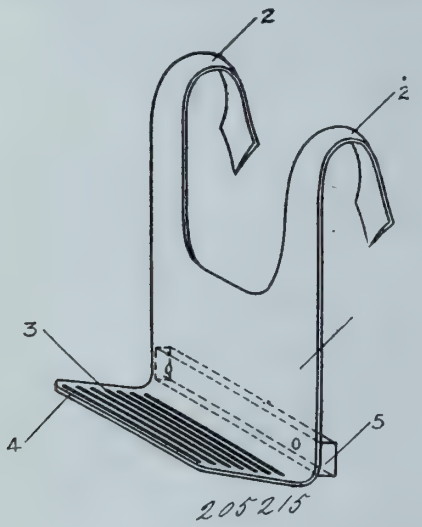
NEW CANADIAN PATENTS

(Issued for Plumbing and Heating Goods)

NO. 205,215. DETACHABLE SAFETY STEP FOR BATH TUBS

Eliza Helen Adams, Walkerville, Ont.

A detachable safety step for bath tubs, stamped from a sheet of metal, folded at one extremity to form hangers and folded with reverse fold at its other extremity to form a tread with a strip of rubber attached to the hanging body and designed



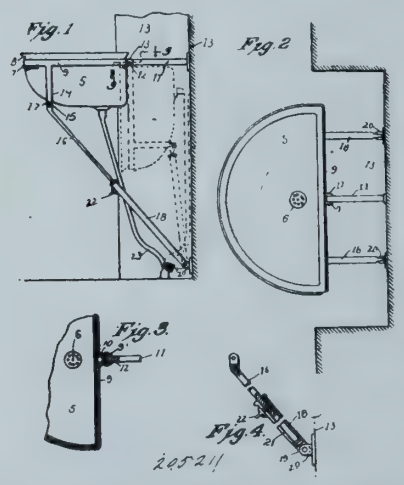
to form a friction bearing between the hanging body and the surface of the bath tub, substantially as described.

* * *

NO. 205,211. BASIN

Harry Schneider and John Schneider, Jr., co-inventors, both of Sloatsburg, New York, U.S.A.

In a device of the character described, a basin formed with an outwardly flared upper rim and with a retaining lug, a bracket having an elemenut extending substantially around said basin and being disposed between said rim and retaining lug, means pivotally connected with said bracket



and co-operating therewith for supporting said bracket to swing with said basin into different positions and for supporting said bracket and basin in the useful position of the latter.

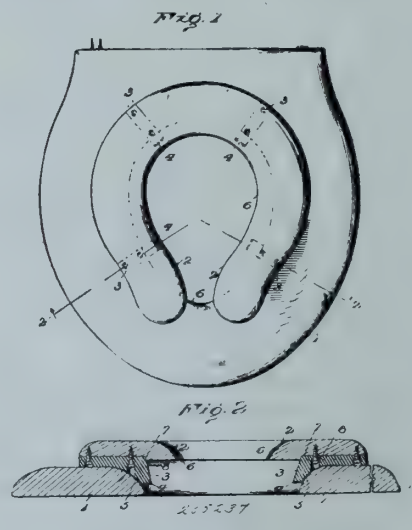
In a device of the character described, a basin, a fixed support, a bracket comprising a band which extends horizontally around the basin and a yoke which extends under the basin, said band having spaced and apertured ears, means extending through the aperture of said ears for drawing the band into clamping engagement with said basin and also extending through said fixed support and co-operating therewith for pivotally supporting said bracket and basin, and means co-operative with said yoke for supporting said bracket and basin in the useful position of the latter and for allowing it to be retracted into and out of the way position.

* * *

NO. 205,237.—AUXILIARY TOILET SEAT

Edward L. Delany, Brooklyn, New York, U. S. A.

As an article of manufacture, a removable auxiliary seat for toilet seats having no permanent attachment to the main seat, and having a series of radially disposed



spaced apart buffer stays formed with downward extending flanges whose under surfaces are adapted to conform to the contour of the inner rim of the main seat, the inner rim of said auxiliary seat projecting well beyond said buffer stays.

* * *

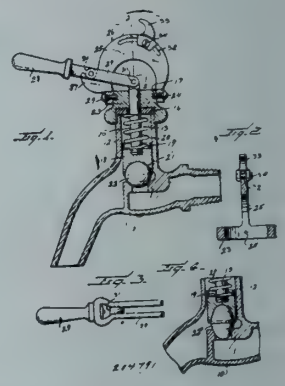
NO. 204,791. FAUCET

John M. Keeler and Charles R. Welsh, assignee of a half interest, both of New Brighton, Pennsylvania, U.S.A.

A faucet comprising a body having a valve seat, a bonnet engaging the body, a valve stem passing through the bonnet and having a valve engaging the seat, a compression spring urging the valve to its seat, a member attached to the bonnet projecting radially therefrom and having a concave, upwardly facing seat, and a handle pivotally connected to the valve stem for movement in a vertical plane and carrying a roller adapted to rest on and fulcrum upon said seat to thereby cause the shifting of the valve from its seat upon pressure being exerted upon the outer end of said handle.

In a faucet a longitudinally movable valve, a seat with which it co-acts, a spring urging the valve to its seat, a valve stem, a handle pivoted to the valve stem, a cam extending eccentrically to the pivotal centre of the handle when the valve is closed and with which said handle engages to shift the valve from its seat, and a stop on said cam adjustable into one position to prevent the handle from passing a line extending through the axis of the valve stem and into another position to permit the handle to pass said line.

A faucet having a body formed with an upwardly extending chamber and with a



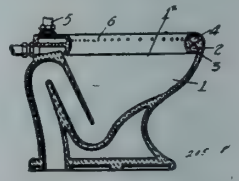
seat below said chamber, a bonnet engaging the top of said chamber, a valve stem extending through the bonnet and carrying a valve at its lower end co-acting with the seat, a compression spring disposed in the chamber and urging the valve to a closed position, a vertically disposed cam mounted upon the bonnet and arching over the stem, the cam having an edge eccentric to the upper end of the stem, and a handle pivoted to the stem for movement in a vertical plane and having a member thereon engaging the edge face of the cam.

* * *

NO. 205,118. VENTILATING DEVICE FOR CLOSETS

Henry Low Webster, South Porcupine, Temiskaming, Ontario.

In a ventilating device for closets, a closet bowl provided with a duct formed in the rim of the bowl and extending completely around the same, and having perforations formed in the interior wall thereof, such perforations being graduated in size from a large perforation at the front



to a small perforation at the back of the bowl, and a vacuum pipe leading from the duct.

* * *

NO. 205,130. SECONDARY VALVE

Walter B. Woore, New York City, New York, U.S.A.

The combination with a coupling having an annular valve seat, of a valve to fit said seat, a plurality of spaced arms projecting from the outer face of the valve through the valve seat close to the walls thereof and serving to guide said valve to its seat, a conduit to fit in the outer end of the

Continued on page 36

De-watering of Sewage Sludges

Bulk of Water is Removed in Sedimentation Tanks From Solids Which Form Most of Sludge But the Elimination of Last Proportion of Water Causes the Difficulty—Suggested Process to Produce Vigorous Fermentation in Sludge Without Nuisance.

THE following outline of an example of sludge treatment by a process of activation was given by F. R. O'Shaughnessy A.R.C. Sc., Consulting Chemist to a District Drainage Board of Birmingham, England, at the recent Congress of the Royal Sanitary Institute. This process differs from the Travis and Imhoff tanks.

The method of collecting offensive liquids and solids by water in order to convey them away from the vicinities of general human resort has, despite the subsequent difficulties and expense of dealing with the resulting sewage, received universal approval and is endorsed now by public opinion.

The lavish pollution of clean water in the course of urban activities resulting from this attitude of mind had always appealed to the writer as a very striking if commonplace aspect of our everyday life, and the moral of it ought to be kept steadily in mind when addressing oneself to the purification of town's sewage.

Another outstanding fact is that as the result of the great amount of work done in recent years the purification of the sewage liquor can be accomplished satisfactorily in various ways; but on the other hand the sludge problem still remains as a very troublesome and formidable one. We in our city have continually envisaged the ideal that the aim in treating both sewage liquor and sewage solids should be the production of an inoffensive and product by inoffensive means at a reasonable cost.

In the course of a discussion of a paper by Mr. S. E. Melling, F.I.C., on the Activated Sludge Process in November, 1914, Prof. G. J. Fowler cited the following conditions to be fulfilled in addressing this problem:—

"The scientific solution of the sewage problem will not be attained until the following results can be guaranteed for any given case:—

1. An effluent, which will not deteriorate the stream into which it flows.
2. No nuisance in the course of sludge disposal.
3. No nuisance from smell or from flies in connection with filter beds.
4. An expenditure strictly proportionate to the sanitary and aesthetic results achieved."

At that date Prof. Fowler remarked that all four conditions were capable of fulfilment by the Activated Sludge Process. Perhaps now, as a result of further experience of this wonderful process on a large scale, it would be fairer to say that the ease with which the sewage liquor is purified by the Activated Sludge Process serves to bring out in greater relief the difficulties inherent in the treatment of the sludge.

Except in those few cases where the whole sewage can be passed direct to the sea or other large mass of water the sewage problem is essentially a de-watering problem. Generally the bulk of the water, viz., 99.45 per cent. is removed quite readily in sedimentation tanks from the solids which go to form most of the sludge, and it is the elimination of this last small proportion of water (which with the solids forms a slurry containing about 90 per cent. of water) which furnishes the difficulty.

The problem is difficult because of two properties of the sludge, (1.) It is offensive, which makes it difficult to handle; (2.) It is a complex aqueous colloid, consisting of colloid foams, emulsoids, and suspensoids, which retain water with great tenacity owing to the presence of oils, soaps and gelatinous bodies which confer considerable stability on the complex.

There are but two agencies capable of breaking up this complex and also destroying its offensive character, heat, and biological decomposition. The first is ruled out because of expense, and there remains only the second which is the agent exploited here in the process under discussion.

The bulk of the sludge consists of material which has already undergone at least partial degradation under the influence of biological agents. Hence there is a consistent principle about this Birmingham process in that it is sought to effect the further rapid chemical degradation of the organic contents of the sludge by promoting intensive fermentation in the mass, under controlled conditions.

Process is Natural One

The process is, therefore, a natural one, in that the disintegration of the organic matter into simpler materials is not interrupted, but it is accelerated. It is, however, hardly correct to call it a process of auto-digestion as has sometimes been done; for if left to itself the sludge will become so offensive as to create an intolerable nuisance. Rather are our efforts directed to maintain a particular kind of fermentation dominant, which shall ensure that offensive volatile products of the reaction shall be reduced to a vanishing quantity and all the operation thereby conducted without nuisance.

This result has, indeed, been secured for some eight years now, showing that the process is a success, for during that time the whole of the sludge from close on a million people has been treated in this way. For some sixty years previous to 1912, when this process was inaugurated here, sludging operations had caused constantly recurring trouble owing to nuisance; and the fact that the outfall at Saltley, where the digestion tanks are situated, is surrounded by thickly populated residential and industrial areas and that all complaints ceased after the present process was installed, is evidence that in one most important respect a long step forward towards the goal aimed at was achieved.

It had long been noted that generally when the so-called "septic action" had become well established in a septic tank, or an old cess-pool, the contents became covered with a thick crust, and fermentation proceeded in the tank without nuisance.

The new point established by us was that concentrated sludge could be made to behave in a similar fashion. This is, indeed, a point of great importance in practice, and differentiates this method from the Septic Tank Process and the methods of Travis and Imhoff, for in these latter the crude sludge enters the digestion chamber in very small increments.

Digestion Chamber Separate From Sedimentation Tank

In the Birmingham sludge and digestion process the digestion chamber is entirely separate from the sedimentation tank in which the crude sludge is collected, and when being charged from the latter tank the digestion chamber will receive a dose of several hundreds of tons of crude sludge (containing about 90 per cent. or so of water) in a few hours.

This, then, is the principle of the process, that with proper safeguards and attention to details, which are referred to later, sludge can be made to undergo vigorous fermentation without causing nuisance, and thereby ultimately a black, inoffensive, mobile sludge is obtained which has profoundly altered its physical characteristics so that it will part with its aqueous content fairly freely as compared with the original crude sludge. Usually this end product is pumped on to prepared plots about half an acrea in area, which are levelled, drained and covered with several inches of ashes for the reception of about 18 inches of the sludge. By drainage and by evaporation the water escapes, leaving a firm inodorous peat-like solid about six inches thick, which is lifted and carried to the tip.

(Continued in next issue)

Unsanitary Houses Are Unprofitable

So Landlords in St. John Find—Sanitary Inpection is Active—Premises Closed if Insanitary

ST. JOHN, N.B.—It is unprofitable for landlords to keep houses in an unhealthy and unsanitary condition in St. John, N.B. In many cases landiords have appealed to the board of health stating that the closing of houses would deprive the inmates of shelter, as there is not an over abundance of houses in this city. Since the appointment of a sanitary inspector, the owners of about thirty-three houses have received notification from the board of health that these houses must be put in a more sanitary condition or be closed as unfit for human habitation. These orders have been issued in compliance with the regulations of the health act and have been rigorously enforced. They were issued by the district medical health officer after notification by the inspector, whom the board employs, by the medical officer himself, or by the Victorian Order of Nurses, the latter being most active in the public health campaign. The houses have had from one to six occupants each, but, notwithstanding the house shortage, notices have been issued, and where the landlords have failed to comply, the premises have been closed. This rigorous enforcement of the law has been the means of forcing delinquent landlords to improve their property, and in many cases it has proved to be of mutual advantage to landlords and tenants.

Source of Waterworks Losses

Defective Fixtures and Corroded Pipes Permit Large Waste of Water.

THE great benefits derived from a water waste survey cannot be too strongly stated. In almost every waterworks system which has not been tested in this way, large leaks or other wastes are certain to exist, says Conservation.

Even the most efficient systems, when tested by pitometer surveys, almost invariably reveal poor but easily remedied conditions at one or more points. These conditions, if allowed to remain, usually involve an unknown but very expensive drain on the operating expenses or a loss in revenue.

A recent example, typical of conditions revealed by such a survey, is that of the waterworks system of a city in the state of Indiana, which supplies a population of some 75,000. In this case, the survey exposed conditions which when corrected reduced a daily consumption of some 10,000,000 gallons by an average of 669,000 gallons. The underground leakage amounted to over 500,000 gallons per day, which, at 5 cents per thousand gallons, represented a waste of over $9,000 per annum. Many other defects were brought to light, including the service to a large packing plant supplied on meter rate; a supposedly disused 4-inch service had never been shut off and unmetered water was being supplied through it. The meter on the other supply pipe for this packing plant, due to a wrong set of gears on the dial, was registering 45 per cent. slow. The annual loss to the department in this case alone was estimated to be over $3,000. In another portion of the system, where the piping was old, the night consumption was out of all proportion to the day rate. Investigation exposed a 1-inch connection discharging full into an abandoned vault and three 1-inch services broken off at the mains. Approximately 35,000 gallons were wasted daily in a public school where the fixtures were running continuously night and day.

Among other defects were numerous bad leaks on service connections, a drain line valve partly opened, fire hydrants with drain valves discharging into sewers and several unauthorized connections from which no revenue was realized.

Expect Quebec to Swing Into Line

Montreal.—While not having taken actual shape, Dominion Vice-President Telesphore Latourelle, Montreal, believes that he will be able, in time, to get Quebec swung into line on many matters of association interest. "But the time is not ripe just yet," said he to Sanitary Engineer. "When we can go to them and say just how well matters are working out in Montreal they will be more interested, and some day we can do that all right."

The organization of rural Quebec, when accomplished, will be an important development in the programme of the Dominion Society of Domestic and Heating Engineers. Quebec City has already exhibited a stimulated interest. There are many active members there, according to last reports. When the work is furthered and the advantages of co-operation better understood there is nothing that the team work principle cannot accomplish. There are enough interested in the work of the Dominion Association to ensure a future of progress and success among members of the Quebec association. President Latourelle will doubtless undertake an active campaign for new members next year.

MANY KICKS ABOUT WATER BILLS

Preston.—The work of installing water meters in Preston is practically complete and simultaneously with it comes a big crop of complaints about over charges for water. One woman appeared with a water bill covering two quarters for about $24. She said they had heard a sizzling noise but thought it had to be that way. Had they known there was a leak, a plumber would have been called. And that case probably typifies a couple of score of others. The fact seems to be that there has been in the past a great waste of water and the meters are only now discovering it. Many of the complainants—most of them no doubt—are quite sure the meter is wrong, but experience is against them, for it shows that a fast meter is a very rare thing.

ENGINEER RESIGNS

Sydney Mines.—The agreement entered into early in the year between representatives of North Sydney and this town as well as the Scotia Company that Town Engineer Barrington would have general supervision of the water service under certain conditions and that the parties jointly concerned would pay his salary is about to expire and a meeting of the council will be held to consider future plans. When Mr. Barrington took hold of the job the water service was almost obsolete and unsatisfactory. By continuous hard work the water engineer effected a decided improvement and stopped many leaks in the system here as well as in North Sydney, but he has notified the authorities of both towns that he will not continue to work in a dual capacity and other arrangements will have to be made by the parties concerned at once.

Winnipeg, Man.—Plumbing contract for garage costing $18,500 for Sparrow Bros., Dromore Avenue, is awarded to A. English, 191 Hargrove Street.

The up-to-date business man departmentizes his business. He knows just what he has in such department and how much business he is doing in that line. He knows what legitimate increase he can and should expect, and he can then demand that each department give a good account of itself.

PLUMBERS' OVERHEAD CHARGES

(Continued from page 18)

To illustrate this, I shall place say $1,000 back of the box indicating jobbing work, $1,000 back of each of the other items, and add these together, which totals $12,000. This gives me the volume of business I did last year. Keep this chart in mind, for later it will be discussed more in detail, to show which of these blocks produces the largest percentage of profit and which produces the least. You will need to know this, for it will help to prove to your customer that certain branches of your business represent service that is really a losing proposition.

Market Conditions and Tendencies

Statements Regarding Supplies and Trend of Prices

MARKETS AT A GLANCE

WHILE there are several declines to chronicle at this time the announcement of the new list prices on baths, sinks and lavatories will not be so welcome to the plumbing trade, as it means an advance in prices. This change is dealt with more fully elsewhere.

With lower lead markets comes the news of reduced prices on lead pipe and sheets, traps and bends, and on lead wool. Solders too are lower. Declines have been made in the prices of copper and brass sheets and rods, and also on ingot metals.

Old materials are lower and easier prices are made on cotton waste.

Some lines of black and galvanized sheets are easier and pipe deliveries show a little improvement with fittings easier to obtain.

There is a fair to average demand for plumbing and steamfitting supplies and heating and radiation are fairly active. Prices in these lines are firm and show indications of remaining so for the present.

The cooler weather has speeded up business in the heating line.

MONTREAL

MONTREAL, November 13.—The condition of trade as affecting the plumbing trade, jobbing and retail, is just fair. Some report a quiet period, while others say there is a fair demand for average lines. Certain it is that the cold weather will affect the volume of business.

Price changes are not frequent but among the important ones of the week are lower prices on lead pipe and sheets, lead wool, traps and bends, etc. This is a condition and tendency that was not unexpected, and is due to lower pig lead prices. Pipe deliveries are somewhat freer but pipe will be scarce for a few weeks yet, it is expected. Galvanized sheets are showing a tendency to ease. Whether this will develop much before the end of the year is uncertain now. Old materials are easing. The firmest line used extensively by the trade is radiation, and there is no possibility, a large manuturer said a few days ago, that there will be any easing of the undertone, but rather a firming. Fittings, both cast and malleable, are easier to obtain. Cotton waste has an easier tendency but as yet remains unchanged. Enamelled ware is quiet and steady. Changes of a downward nature are expected to come gradually on many lines.

Small Improvement For Canada Plates

Montreal.

CANADA PLATES.—Prices are still nominal on Canada plates. One large manufacturer-user stated this week that he has received some stock but that quantities are very limited. There is little prospect of the present season recording much improvement, if any, as to either stocks or prices.

Lower Prices Now on Lead Products

Montreal

LEAD PRODUCTS.—Prices are lower on lead pipe and waste, lead traps and bends, sheets and lead wool. This was forecast in the last issue of Sanitary Engineer, and the change follows the trend of pig lead markets, these weakening materially right along. Solder, as yet, is unchanged. Manufacturers report business as fair.

Lead pipe, per 100 lbs.	16 00
Lead waste, per 10 0lbs.	17 00
Note—Lead pipe is subject to a discount of 10%.	
Lead traps and bends	List plus 15%
Lead wool, lb.	0 14
Lead sheets, 2½ lbs.	0 12
Lead sheets, 3 to 3½ lbs. sq. ft., lb.	0 11½
Do., 4 to 8 lbs., sq. ft.	0 10½
Cut sheets ¼c lb. extra and cut sheets to size. ¾c lb. extra.	
Solder, guaranteed, lb.	0 31½
Solder, strictly, lb.	0 29½
Solder, commercial, lb.	0 26½
Solder, wiping, lb.	0 26¼
Wire solder—	
40-60	0 33¾
45-55	0 36
50-50	0 38½
Zinc sheets, casks	0 16½
Do., broken lots	0 17

Closet Sales Are Reported Light

Montreal.

CLOSETS.—Active selling of closets is not heavy, the time of year having arrived when output is restricted. Stocks are in fairly good shape and the trend of the market is less uncertain than it was, few being as willing to cut prices as was the case during the summer and early fall.

Closet, standard outfit	$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00
Do., wood strip seat and cover	3.75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Enamelled Ware Is Somewhat Revised

Montreal.

ENAMELED WARE.—Prices are revised by some manufacturers on lines produced by them, but the changes, where made, are stated to be in the nature of revisions more than in the way of actual changes. One firm reports that, whereas they used to sell at one price whether car or less than car lots were ordered, they are now selling at a price to suit large and small buyers, and have issued a new list with this in view. Freight rate increases have been responsible for a firming of prices on baths and basins, the added freight charges totaling a considerable amount.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide	$40 75
Bath tubs, 5½ ft.	45 30
Lavatories—	
17x10" Apron F139 or P4045	12 25
18x24" Apron F154 or P3845 or P3847	18 70
18x21" Apron F169 or P4205	14 00
18x21" Roll Rim F197, F199 or P4655-6.	12 20
17x19" Roll Rim, F241 or P4345	9 95

Sinks, roll rim, 18x30 in.			18 25
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$5 95	$6 00	$5 85
18 x 30	6 85	7 15	6 70
20 x 30	7 80	7 75	7 70

Gradually Pipe Will Be Improved

Montreal.

IRON PIPE. — Manufacturers are promising improved deliveries on pipe. "We will deliver on all sizes within three [illegible]e advice sent out by one Canadian maker who is a big factor in the production of pipe. This, if carried out, will mean much to the trade, for nearly all are without ample stock of the smaller sizes, galvanized particularly, to carry them along. The basic steel market, having eased at primary points, there is probability of the undertone on pipe being gradually easier.

LIST NO. 46
Standard Buttweld Pipe

	Per 100 Ft. Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.05	107.37	.....	.....

Navigation Closing Will Retard Delivery

Montreal.

SHEETS AND PLATES.—The close of navigation as between ocean ports and inland ports will naturally have some effect on the price of sheets. There will be an increase in the hauling charges that must be added to the basic price. However, it is expected that there may be some increase in supplies from now on, with gradual declines as production increases. Some have already made a shading in their price lists, but a rather nominal condition is prevalent.

BLACK SHEETS—

10 gauge	....	9 25
12 gauge	....	9 30
14 gauge	....	9 35
16 gauge	....	9 45
18-20 gauge	....	9 90
22-24 gauge	....	9 95
26 gauge	....	10 00
28 gauge	....	10 10

GALVANIZED SHEETS—

U.S. Standard—		
10¾ gauge	13 00	13 50
28 gauge	12 75	13 25
26 gauge	12 50	13 00
22 to 24 gauge	12 40	12 85
20 gauge	12 25	12 65
18 gauge	12 25	12 65
16 gauge	12 05	12 45
14 gauge	....	11 35
12 gauge	....	11 20
English Standard—		
28 gauge	13 00	13 50
26 gauge	12 75	13 25
24 gauge	12 15	12 65
22 gauge	11 80	12 30
18 and 20 gauge	11 35	11 85

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Lighter Demand For Conductor Pipe Elbows

Montreal.

ELBOWS.—Demand from the trade is seasonably light for conductor pipe elbows. These are in ample supply at present, in view of the restricted demand. Prices are unchanged and there is no likelihood of these being higher.

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Lagging in Interest Are Old Materials

Montreal.

OLD MATERIALS. — Regardless of the variety, there is a softening of the [illegible] on old metals, large factors such as founders not buying, except as they require, which is not very often. The quotable basis is falling away gradually and occasional declines may be looked for still.

Dealer's Buying Prices

Automobile tires	....	0 01
Yellow brass	0 07	0 08
Red brass	....	0 15½
Light brass	....	0 05½
Scrap zinc	....	0 05¼
Lead, heavy	0 05	0 06
Lead, tea	....	0 03½
Light copper	....	0 11
Heavy copper	....	0 13
Wrought iron, No. 1, per gr. ton	19 00	20 00
Malleable scrap (ton)	....	22 00
Pipe scrap (ton)	....	12 00
Stove plate, per ton	....	30 00
Heavy melting steel	....	18 00
No. 2 busheling	10 00	12 00
Boiler plate	....	16 00

Mills Delivering Iron and Steel Now

Montreal.

IRON AND STEEL.—Rolling mills are still turning out quantities of steel and iron bars and there is some improvement. This, in a few weeks, should have been such as to improve stocks, but jobbers cannot yet fill in their sizes as completely as desired. Prices are steady and unchanged.

IRON AND STEEL.

		Per 100 lbs.
Common bar iron	....	5 15
Refined iron	....	6 15
Mild steel	....	5 30
Band steel	....	5 80
Iron finish machinery steel	....	5 35
Sleigh shoe steel	....	5 30
Tire steel	....	5 50
Toe calk steel	....	6 20
Spring steel	....	6 00
Harrow tooth steel	....	5 45
Single reeled machinery steel	....	6 80
Norway iron	....	15 00
Mining tool steel, per lb.	....	0 24½

NOTE—3-16" and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

Few Now Want Conductor Pipe

Montreal.

CONDUCTOR PIPE.—There is very little demand for galvanized iron conductor pipe, the cold weather having settled outside operations generally, on such work. There is no change in the undertone, and prices are steadily the same as at last report.

PIPE (Conductor)

2 in., in 10-ft. lengths, list	....	8 00
3 in., in 10-ft. lengths, list	....	9 70
4 in., in 10-ft. lengths, list	....	12 80
5 in., in 10-ft. lengths, list	....	17 50
6 in., in 10-ft. lengths, list	....	21 30

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in.	$6 90	15-in.	$12 50
10-in.	7 70	18-in.	16 00
12-in.	9 10		

Add 25% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Few Sales Made But Prices Steady

Montreal.

CORRUGATED IRON.—While there has been some price-cutting on corrugated sheets, the war is likely to be less strenuous. Demands have eased off very considerably and from now forward there is expected to be no more than a limited enquiry and light sale. Prices will perhaps ease after the turn of the year; some say not sooner.

Corrugated Sheets—	Per 100 Sq. Ft.	
No. 28 gauge	....	12 00
No. 26 gauge	....	12 75
No. 24 gauge	....	18 75
No. 22 gauge		22 25
No. 20 gauge	....	26 50
No. 18 gauge	....	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

No Advance Likely For Range Boilers

Montreal.

RANGE BOILERS.—Prices are unchanged on these and standard 30-gallon hold at $15 each. There is no likelihood of prices advancing, but there is probability of an easier undertone in time, dependent upon the easing in the price of heavy gauge sheets. Sales have not been so active of late as they were a few weeks ago. There appears to be no shortage.

Range Boilers—	Standard	Ex.Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Radiators Very Firm; Hard to Stall Advance

Montreal.

RADIATORS. — Manufacturers state that they see no possibility of a decline on radiation. On the other hand a very large manufacturer stated to Sanitary Engineer a few days ago that the makers will be glad if they are able to forestall an advance. This, partly, it was explained, due to the close margins of profit on which they have been operating, and this informant indicated that the trade will be lucky if it does not have to pay more for its radiators. The demands have continued unusually heavy right down to the present time.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 2 3in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Disount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

Might Be Lower; Soil Pipe Later

Montreal.

SOIL PIPE.—Prices on soil pipe are unchanged. No increase of price is probable, and after the turn of the year the chances will be more favorable to some revision downward. Meanwhile there is a seasonable and therefore a somewhat smaller demand from the trade.

Soil Pipe (medium and extra heavy), net.
Do., 2, 3, 5, and 6-in., add 5% to list.
Do., 8 inch, add 20% to list.
Fittings, 4 in., net list.
Do., 2 to 6 in., 20%.
8 inch pipe and fittings, add 20% to the list.

Oakum Is Still Selling at $9.50

Montreal.

OAKUM.—Demand for oakum is steady but restricted. The trade demands are likely to continue limited. Plumbers' grade is quoted here at $4.75 per 50 lb. bale. There may be a near reduction.

Steady Basis Here on Compression Goods

Montreal.

VALVES AND COCKS.—Prices are steady and without change. Trade requirements are not heavy, but there is always a certain amount of business, especially where work started months ago is being completed. Discounts remain as they have been.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	list plus 20%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Much Improvement Shown on Fittings

Montreal.

FITTINGS.—Prices are steady on fittings. The interesting feature is that of improved and increased production on malleables, these being available in increased quantities here, and sizes up to 6 inch being procurable without much delay. Heavy and large diameter cast fittings have been scarce owing to difficulties in obtaining cars.

PIPE FITTINGS

Cast iron fittings	Plus 10%
Plugs	7½%
Bushings	10%
Unions, ¼-in. to 2½-in.	30%
Do., ⅛-in. to 3-in. and larger	25%
Dart unions, ¼-in. to 2-in.	8%
Do., 2½-in. and larger	Plus 5%
Nipples, up to 4-in.	50%
Do., 4½-in. and larger	40%
Do., running thread, 4-in. and under	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Waste Holds Still But Change Is Due

Montreal.

COTTON WASTE.—While no downward revision has yet been made on cotton waste, the tendencies are much easier. There should naturally be a decline, following the weaker cotton markets, and a lower basis will be quoted. it is expected, in a few weeks. Jobbers report a very satisfactory amount of business despite the maintenance of the market.

WASTE

Cream, Polishing	0 26

WHITE

XXX	0 23
XX	0 21½
X	0 20
Japanese	0 17
XX, grad.	0 22½
XLCR	0 20
X Empire	0 18½
X Press	0 16½
XC	0 18½

COLORED

No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0 10

Above lines subject to trade discount for quantity.

Ingot Market Quiet; Price Undertone Soft

Montreal.

INGOT METALS.—As is usual at this season, ingot metals are ruling with a quiet undertone. The importers are not doing a great deal and most lines have been easing off.

TIN.—The London market was off about ten pounds this week, but there is really not a great change. A price of 49 cents is quoted here.

COPPER.—No change of moment has been made. There is plenty of copper to be had and rather a keen competition makes close figuring when any large lots are wanted. Electrolytic, 21 cents; casting, 20½ cents per pound.

LEAD.—Future prices on lead are expected to be easier. In some big centres the stocks are limited; in others there is a surplus. As low as 8½ cents is quoted.

ANTIMONY.—This sells here at 9 cents. There is not much demand.

ALUMINUM.—At the unchanged quotations of 35-36 cents there is little new feature.

SPELTER.—No change of consequence. Price remains at 9½ cents per pound.

TORONTO

TORONTO, Nov. 13.—The chief features in the plumbing and steamfitting trade are the new lists on enamelled goods and the fall in prices of lead products.

Baths, sinks and lavatories have been put on a list basis instead of being quoted at net; and new prices constitute an advance of 7½%, as referred to in a special article.

Lead traps and bends and lead pipe take lower prices, following declines in pig lead. Solders also have declined. Lower quotations are made on brass and copper sheets and rods and ingot metals generally show declines.

The drop in raw cotton has cheapened cotton waste. Oakum is easier though the plumbers' grade is unchanged.

Bar iron and steel and steel sheets show a little easiness though no change in prices is recorded. Supplies of pipe and fittings show slight improvements.

Business is fairly brisk though most of it is on jobs being finished up and is not new business.

Baths, Lavatories and Sinks Up 7½ Per Cent.

Toronto.

ENAMELED WARE.—The expected change in enameled ware prices has gone into effect, and the new quotations practically mean an advance of 7½ per cent. on all lines of bath tubs, lavatories and sinks. Instead of being quoted at a net price these are now put on a list basis and the present quotation is 15 per cent. discount off list. This is reverting to the practice of former years, and while some may prefer the net prices there is no doubt that the list system has advantages. Instead of printing and issuing new lists every time there is a price change, all that is necessary is to quote the new discount. Manufacturers state that the increase is due to overhead charges and higher operating cost, and say that despite the talk of cheaper pig iron and steel the present prices of raw materials are still considerably higher than last year's prices.

The movement of these goods has been fairly brisk this month so far, but it is said that the greater part of the present distribution is on contracts made earlier in the season and for buildings nearing completion, and therefore not new business.

The new list prices are given below:

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide	$51 45
Bath tubs, 5½ ft.	57 10
Lavatories—	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847	23 60
18x21" Apron F169 or P 4205	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim, F241 or P4345	12 60

Sinks, Roll Rim, 18x30 in.			23 00
Sinks, Flat Rim—	1 only	2 only	3 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

All above list.
Discount 15% off these prices.

Closet Bowls Hold Unchanged

Toronto.

CLOSETS.—No changes are reported in prices of these goods. Stocks are in fair shape and the demand has been fairly good, but it is pointed out that it has been chiefly on buildings nearing completion. Quotations are as follows:

Closet, standard outfit	$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, seat and cover	19 00
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Radiators Active; Lists Unchanged

Toronto.

RADIATORS.—The demand for radiators has been good, and so far manufacturers have been in a position to meet it. While stocks are not heavy it is hoped that it will continue to be possible to cope with the demand. Prices are unchanged and the same discounts are quoted on following lists.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

Prices Hold For Range Boilers

Toronto.

RANGE BOILERS.—There has been no change in the prices of these articles. The demand has been active for small and medium sizes. Manufacturers of riveted boilers report stocks in fair shape. Quotations are given.

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Wrought Pipe Supplies Slow in Improving

Toronto.

PIPE.—Although manufacturers report an improvement in deliveries and in the situation the trade say it has hardly reached them yet. The smaller sizes of pipe are still very scarce, but there are evidently better quantities of the larger sizes about, and it is stated that a considerable reduction in price is being offered on these.

LIST NO. 46
Standard Buttweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8 63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.05	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$ 38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2 66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4 39	4.39	5.21

Sheet Copper and Brass Decline in Price

Toronto.

COPPER AND BRASS.—Sheet copper and brass show a reduction of from 12½ to 15 per cent. in prices, due to further declines in the raw metal. Prices on the standard lines are the following: copper, casting ingot, 19½ to 21½ cents per lb.; rods, base, ½ to 2 inch, 37½ cents; soft sheets, 16 ounce and heavier, 40 cents; tubing, 42 cents per lb.; brass tubing, seamless, base, 39 cents; rods, ½ to 1 inch, 29 cents; sheets, 24-gauge and heavier, 34 cents per lb. base. Above prices are for full sheets and bars.

Boiler Tubes Show Little Improvement

Toronto.

BOILER TUBES.—The situation in regard to boiler tubes has not much altered, and though they are beginning to show a little improvement in deliveries stocks are still low. The demand continues fairly good, and prices show no change. Quotations are given as under.

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	$.....
1¼ inch	32 00	.....
1½ inch	33 00	.....
1¾ inch	35 00	....
2 inch	35 00	30 00
2¼ inch	38 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Fittings Are Unchanged; Some Shortages

Toronto.

PIPE FITTINGS.—The demand for pipe fittings, though a little lighter, is still active. Supplies of some lines, especially unions, are short. Stocks of the smaller sizes of malleables in galvanized are none too plentiful. Quotations are unchanged and are as follows:

PIPE FITTINGS

Cast iron fittings	Plus 7½%
Plugs	Less 18%
Bushings	Less 18%
Unions, black	35%
Do., galv.	40%
Dart unions, ¼-in. to 2-in.	Plus 35% and 10%
Do., 2½-in. and larger	8%
Nipples, blk., up to 4-in.,	50%
Do., gal., up to 4-in.	40%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4 in. and under	20%
Couplings, 4½" and larger	Net list

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C.	0 20	0 30

Demand Reveals Shortage of Heaters

Toronto.

STOVE AND RANGES.—An active demand is reported on both heaters and ranges. With dealers keeping their stocks down to the smallest possible limit they are more often sold out of particular lines than usual, and there are more hurry calls on the makers. When a stove is wanted to-day it is usually a rush order, and with stocks at factories also on a smaller scale than is ordinarily the case, manufacturers are obliged to do some tall figuring to keep their customers satisfied. Materials have been scarce for a long while, and some report that they seem to be getting worse instead of better. In spite of lower quotations from primary markets on pig iron and plates little hope is given of any recession in stove prices for a while.

Stove Pipes and Elbows; Stocks Limited

Toronto.

STOVE PIPES AND ELBOWS.—There has been a good demand for these and jobbers and dealers have been hard put to fill orders. Many have had to cut up large sheets on account of inability to obtain Canada plate. No improvement of supplies of the latter are reported and little is expected now this season. Quotations on pipes and elbows are the following:

Stove Pipes—Made up, 6 in., common, $23.57 per 100 lengths; bright, $29.45; 7 in., $26.09; Bright, $31.22 per 100 lengths.

Stove Pipe Elbows—6 in., Light, $3.15 doz.; heavy, $3.65; 7 in., light, $3.50; heavy, $4.09.

Demand Outpacing Furnace Supply

Toronto.

FURNACES.—Good business is reported in the furnace line, and the same thing applies to these as to stoves in regard to smallness of supplies. Manufacturers report that stocks are insufficient to meet requirements. A shortage of materials has curtailed the output.

Demand Slackens For Bar Iron

Toronto.

BAR IRON AND STEEL. — Little

change is noted in the situation. Some lines have improved in quantity, but demand has slackened considerably. The tone is easier and though prices have not been reduced bar iron and steel have got back to a base of $5.50. Stocks are still below the average. Quotations are the following:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	$ 6 25
Common bar steel, ¼-in. and heavier	5 50
Common bar iron, 3-16 in. and lighter	6 25
Common bar iron, ¼-in. and heavier	5 50
Angle base	6 00
Horseshoe iron	6 00
Tire steel	5 95
Band steel	6 60
Spring steel	12 75
Mining drill steel	31 25
Sheet cast steel	....
Sleigh shoe steel	6 00
Norway iron	16 25
Toe caulk iron	6 70
Hoop steel	7 50

Valves Unchanged; Good Sales Yet

Toronto.

COMPRESSION GOODS AND VALVES.—The demand for the larger sizes of valves has fallen off, but there is a good sale still for the smaller sizes in the various lines. Prices are holding firmly, but it is possible that there may be a revision on some lines in the near future if the declines in raw materials continue. Quotations on the better known lines are given.

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Lead Products Lower; Pipe, Solders Decline

Toronto.

LEAD AND ZINC PRODUCTS.—The plumbing trade will note with satisfaction the reductions in prices of lead goods and solders. The price of pig lead is still declining and the question is how far will it go? Present prices are still higher than last year's figures on U. S. markets, and though low prices have been reached in English markets, they are reported as firming there. Lead pipe is one cent per pound cheaper, and is now quoted at 16 cents. Waste pipe is listed at 17 cents. Lead wool is down a cent. Solders are from 3 to 5 cents per pound less. Business is reported to be brisk at the present time. Present quotations are below:

Lead waste, list, per lb.	....	0 16
Lead waste pipe, list, pe rlb.	....	0 17
Do., over 8 in., list, per lb.	....	0 18
Lead pipe is subject to discount of 10%		
Lead traps and bends		add 15%
rolls, lb.	....	0 12¼
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.		
Solder, wire, lb.	....	0 37
Lead sheets, 4 to 6 lbs., sq. ft., in		
Do., strictly, lb.	0 30	0 32
Do., commercial, lb.	....	0 29
Do., guaranteed, lb.	....	0 32
Do., wiping, lb.	....	0 28
Zinc sheets, per lb.	....	0 19
Calking lead	....	0 18½

Traps and Bends Now Plus 15 Per Cent.

Toronto.

LEAD TRAPS AND BENDS.—A reduction of approximately 12 per cent. has been made in the price of lead traps and bends, and these goods are now quoted at list plus 15 per cent. instead of list plus 30 per cent., and is due to the decline in primary lead markets. A fair business is reported.

Soil Pipe Prices Firm Tendency

Toronto.

SOIL PIPE AND FITTINGS.—A manufacturer of these goods informed Sanitary Engineer that lower prices on cast iron soil pipe and fittings could hardly be looked for at the present. It was stated that they had bought pig iron when it was lower than it is to-day and will soon have to go into the market for further supplies, and if they had to pay the present price for iron instead of a reduction in soil pipe it is possible that they would have to be increased in price. Then, too, it was stated that cast iron pipe prices have not advanced in the same proportion as wrought pipe. Present quotations are as below:

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, add 10% to list.
4-inch, net list.
8 inch, add 20% to list.
FITTINGS—
2 to 6 inch fittings, 20% discount.

Supplies of Sheets Slightly Improved

Toronto.

SHEETS AND PLATES.—Notwithstanding the talk of lower prices on sheets, the fact remains that the bulk of the U.S. mills are holding to present prices for the balance of the year and are unwilling to quote for 1921. Although the Steel Corporation are fairly well booked up with orders, the bulk of the independents are only operating from 60 to 70 per cent. capacity. Buyers are looking for lower prices and are purchasing on a limited scale only. Jobbers state that it is impossible to make reductions on present prices without selling at a loss, and it is doubtful if the trade would buy even if prices were reduced. Lighter gauges in both black and galvanized remain very scarce. The following prices are nominal.

BLACK SHEETS

14 gauge	....	10 15
16 gauge	....	10 25
18-20 gauge	....	10 70
22-24 gauge	....	10 75
26 gauge	....	10 80
28 gauge	....	10 50
3-16 inch plate	....	7 00
¼-in. boiler plate	....	6 50

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier.	Apollo.
10¾ oz.	12 50	13 25
U.S. 28	12 70	12 85
U.S. 26	12 40	12 55
22 and 24	12 25	12 40
18 and 20	11 95	12 10
16	11 95	12 10
12 and 14	11 20	11 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Lower Quotations on Cotton Waste

Toronto.

COTTON WASTE.—The cotton waste market has undergone revision following declines in the raw cotton markets, and prices of the various grades are from one to three cents per pound less. The demand for this product is reported to be steadily good. No quotations are the following:

WASTE

Cream, Polishing	....	0 22½

WHITE

XXX	....	0 21½
XX	....	0 19½
X	....	0 18½
XXX	....	0 23
XX, grad.	....	0 21½
XLCR	....	0 20
X Empire	....	0 18½
E Press	....	0 16½
X Special	....	0 15½
XC	....	0 17½

COLORED

No. 1	....	0 15
No. 7	....	0 14
No. 1A	....	0 13
No. 1B	....	0 12
Fancy	....	0 18
Lion	....	0 16
Standard	....	0 14
Popular	....	0 12
Keen	....	0 10

Above lines subject to trade discount for quantity.

Plumbers' Oakum Unchanged and Quiet

Toronto.

OAKUM.—There is an easier tone prevailing in the oakum market, but quotations on plumbers' oakum are unchanged at $9.50. The demand is less active at present.

Corrugated Sheets; Firm and Unchanged

Toronto.

CORRUGATED SHEETS.—No change is reported in these. The inability to secure material is keeping stocks low, and the light gauges especially are hard to obtain in any quantity. Prices are nominal.

Corrugated Sheets—		Per 100 Sq. Ft.
No. 28 gauge	....	12 00
No. 26 gauge	....	12 75
No. 24 gauge	....	18 75
No. 22 gauge	....	22 25
No. 20 gauge	....	26 50
No. 18 gauge	....	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Conductor Pipe, Trough; Demands Good

Toronto.

CONDUCTOR PIPE AND EAVES-TROUGHING.—Sales of pipe and trough have been fairly good with demand. Improvements in deliveries are slow in coming. Quotations remain list plus 25 per cent.

PIPE (Conductor)
Plain

2 in., in 10-ft. lengths, list	....	8 00
3 in., in 10-ft. lengths, list	....	9 70
4 in., in 10-ft. lengths, list	....	12 80
5 in., in 10-ft. lengths, list	....	17 50
6 in., in 10-ft. lengths, list	....	21 30

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.
8-in.	$6 90	15-in. $12 50
10-in.	7 70	18-in. 16 00
12-in.	9 10	

Add 25% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Stocks Low of Corrugated Elbows

Toronto.

CRIMPES AND CORRUGATED ELBOWS.—No change has taken place in quotations of these goods which are still sold at 50 per cent. above list. Owing to the scarcity of galvanized sheets the supply of these elbows has been restricted to a great extent and dealers have found a difficulty in filling orders.

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Some Lower Quotations For Waste Materials

Toronto.

WASTE MATERIALS. — There has been considerable change in quotations on waste materials recently. Most metals as well as rubbers and other lines have declined in price. Some higher quotations are made stove plate and steel, but trading is very limited and little business is being done in this market. With a downward trend in virgin metals there is also a decline in scrap prices.

WASTE MATERIAL

No. 2 busheling	....	13 00
Stove plate, per ton	28 00	29 00
Scrap pipe	0 09	0 10
Yellow brass	0 07½	0 08
Red brass	....	0 15¾
No. 1 machinery cast	37 00	38 00
Heavy melting steel	22 00	23 00
Heavy copper	0 12	0 12½
Light copper	0 10½	0 11
Scrap zinc	....	0 05½
Light brass	0 05	0 05½
R.Rd. wrought iron, No. 1, per gr. ton	24 00	25 00
Heavy lead pipe	0 05	0 06
Old rubbers, boots and shoes	....	0 06
Overseas lumbermen's rubber boots	0 04	0 04½
Bicycle tires	0 01	0 02
Automobile tires	0 01½	0 02
Tea lead	....	0 03

Turpentine and Oil Still Lower

Toronto.

LEAD IN OIL.—No change has taken place in the price of white lead in oil, and pure is quoted at $21.20 per 100 lbs., in less than ton lots. Genuine red lead, dry, sells at 16½ cents per lb. in 100-lb. casks, or 17 cents in smaller quantities. Linseed oil is lower and is quoted at $1.30 per gallon, barrels, and turpentine at $1.90; 15 cents extra per gallon in each case for smaller quantities; packages extra.

Ingot Metals Dull; Prices Falling

Toronto.

INGOT METALS.—Very little business is reported lately in ingot metals. Prices are lower generally with lead and copper leading in the declines.

TIN.—The market is quiet and buyers seem to consider a lower price natural. Prices of tin have slumped in English and American markets. Quotations are 46 to 48 cents per lb.

LEAD.—Trading is dull in this metal and further declines are reported from outside markets. Selling prices are at $8.50.

COPPER.—Extremely dull is the report on copper. There is a further decrease in production. An increased demand for manufactured copper, attributed to lower prices, is noted. Quotations on casting are 19½ cents.

SPELTER.—Not much interest is being shown in spelter and sales are around 9¼ cents.

ANTIMONY.—Few enquiries are being made for this, and prices are easier at 9 to 13 cents according to grade.

ALUMINUM.—No changes are reported in aluminum and prices are still 37 to 39 cents.

WINNIPEG

WINNIPEG, Nov. 13.—With the exception of a slight drop in the price of lead pipe markets on plumbing and steamfitting supplies are holding firmly.

Prices on cotton waste are likely to be lower, it is thought, but the raw cotton market at the present time is showing a firmer tone again.

A few changes have been made in pipe fitting discounts and though supplies are short an easier tone is expected.

Canada plate is as scarce as ever, as are also stove pipes and elbows.

Radiators are in fair demand and the colder weather is already causing a run on stoves and heaters. It is feared that the supply of heating stoves will soon run out once the rush starts.

Business in this line is only fair, and could stand improvement.

Lead Pipe and Waste Prices Slightly Lower

Winnipeg.

LEAD PIPE.—There has been a slight change made in the prices of lead pipe and waste pipe and quotations are lower. Lead pipe is now selling at $15.66 per 100 lbs., and lead waste at $16.11.

Cast Fittings Are Slightly Lower

Winnipeg.

CAST IRON FITTINGS.—New discounts are being quoted on cast iron fittings making prices slightly lower. New quotations are as follows:

Elbows, Tees, Crosses, Return Bends, Caps and Lock Nuts, 20% advance.
Reducers, 10% advance.
Bushings, net list.
Plugs, net list.
Flanged Unions, standard, 20% advance.

Oakum Lower; Supplies Are Fair

Winnipeg.

OAKUM.—The price on U.S. navy oakum has been lowered slightly and the supply is fair. There is a good demand for this line and the price quoted is $13 per bale, 27 cents per pound in less than bale lots.

Candle Wick Packing Lower in Price

Winnipeg.

CANDLE WICK PACKING.—A lower price has been recorded this week on candle wick packing and is quoted at 70 cents per pound.

Canada Plate Is Still Scarce

Winnipeg.

CANADA PLATE.—It is the opinion of many that there will be very little improvement as regards Canada plate this fall. Prices are strictly nominal on such stocks as are available. Hardship will probably result from the shortage, in some communities at least.

Range Boilers Unchanged; Supplies Holding Out

Winnipeg.

RANGE BOILERS.—There has been a fair demand for range boilers. Supplies are holding out good, and there seems to be sufficient in spite of shortage of material. Manufacturers made up these goods before the scarcity of material became so severe and had stocks of boilers on hand to meet the demand. There is no change in prices of range boilers.

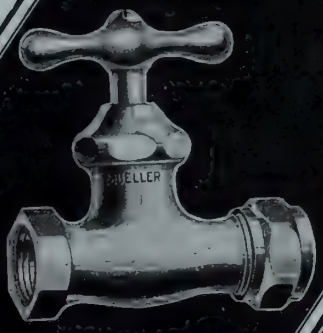
30 gallons	....	15 00
35 gallons	....	17 50
40 gallons	....	20 40
52 gallons	....	27 20
66 gallons	....	35 00
82 gallons	....	48 00
100 gallons	....	62 00
120 gallons	....	77 00

MUELLER

Compression Stop Cocks

Beauty of design—freedom from sharp angles and creases—and the ease with which they can be kept clean—make MUELLER Compression Stop Cocks especially desirable for residence plumbing.

The well-known MUELLER quality of materials and workmanship insures that dependable service which builds reputation for the wise plumber.



Each MUELLER Cock is tested to withstand 200 pounds hydraulic pressure—and is fully warranted.

The four Cocks here shown are a few of the many MUELLER patterns—all designed to meet specific requirements.

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Water, Plumbing and Gas Brass Goods and Tools

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Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

Uncovered Furnace Pipes Lose Less Heat Than if Covered

Important Tests Show That Use of Thin Sheets of Asbestos Paper On Bright Tin Heat Pipes Results in Waste of Heat—Heat Loss 39 Per Cent. Greater With One Thickness of Paper Than Without —Double Wall Tin Pipes Have Good Merit—Favor Galvanized Iron Leader Pipe—Demonstrate Uneconomical Effect of Any Oil Paint Applications on Heat Pipes

(Continued from last issue)

THE drums were shielded from radiation from each other by blackened compo-board partitions. These partitions did not in any way interfere with the flow of natural air currents. The temperature of the air was measured by thermometers suspended at the elevation of the drums at convenient positions nearby. The thermometers were not affected by radiation from the drums.

Thus, the actual measurements involved were simple and were not liable to serious error. These measurements consisted of the weighing of the steam condensed, the reading of the pressure of the steam, and the reading of the room air temperature.

The tests, 40 in number, with four drums under steam in each test, were carried out at night when the doors and windows of the large laboratory were closed. No air currents were noticeable near the apparatus. A period of ten hours was chosen for the duration of a test as that time was sufficient to permit accumulations of condensate great enough to render negligible the slight error in weighing. These quantities of water varied from 5 to 20 pounds, depending upon the surface material of the test drums. The steam pressure was constant on any given test within 0.2 of an inch head of mercury. In all the tests there was only one case in which the thermometers indicated the presence of air in the drums at the end of ten hours' operation. The greatest variation of temperature of the surrounding atmosphere during any night was four degrees Fahrenheit. A recording thermometer was used to show the uniformity of the laboratory temperature.

The drums were tested in different positions around the steam header in order to compensate for any irregularity in the flow of steam to the drums or in the currents of air about the drums. As no irregularities were noticeable in the values of the coefficients of emissivity for the various positions, the practice was abandoned after the first four drums were tested in the interchanged positions.

One drum, of bright tin not insulated, was in operation in all tests. Its performance served as an indication of any lack of uniformity in the conditions existing throughout the tests.

In order to make correction for the loss of water by evaporation from the receivers, a receiver of water was balanced on a scales and the loss in ten hours actually determined by weighing. After several trials in which the loss ranged from 0.10 to 0.12 pound it was decided to use the value 0.11 pound. This amount was applied as a correction to all the weights of water. Every test was repeated until the results obtained were found to agree within very small limits. In no case are the data reported, the result of less than two tests, and in most cases four were run. Two tests were considered sufficient if the results agreed within one per cent. of their mean value.

Results of the Tests

The first result of importance is the convincing evidence which the tests present as an argument against the use of thin layers of asbestos paper covering on bright tin pipes. The heat loss was 39 per cent. greater with one thickness of the paper than without. Such a loss is of no small degree of importance as calculations will show that it results in a waste of five per cent. or more of the coal consumed in the average house furnace.

The fact that the heat loss from the warm-air pipes of a furnace system is of some consequence is not appreciated generally. A considerable part of the heat of the air flowing through the pipes of the average installation is dissipated from the pipe surface to the surrounding air and nearby objects. The tests were carried out on a single leader pipe furnace in which the quantity of air handled and the heat content of the same above the entering temperature could be readily ascertained. The heat loss was determined by calculation from the drop in temperature of the air in its passage through the pipe. The temperature and velocities indicated in the curves are fair representative values.

The significance of these preliminary tests is to bring out the fact that the heat loss from warm-air furnace pipes is a serious item. From the curves it can be seen that in the case of the asbestos paper-covered pipes, the loss amounts to about 23 per cent. of the heat of the air at the bonnet, above inlet air temperature. If the pipe is of bright tin and not covered, this loss is reduced to about 17 per cent. of the heat available. In either case the loss is great; and with the further consideration that a warm-air furnace under average conditions of installation is, at best, only about 60 per cent. efficient, it will be understood that the actual waste of coal ascribable to poor heat pipe insulation is enough to warrant attention.

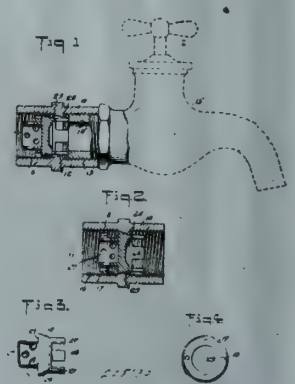
(To be continued)

NEW CANADIAN PATENTS

Continued from page 26

coupling and engage said arms for moving the valve away from the seat when the faucet is inserted into the coupling, and a cage on the inner face of the valve for centering the pressure of the water thereon to insure the seating of the valve as soon as the faucet is removed.

In a device of the class described, the combination of a conduit having two longitudinally spaced apart apertured partitions in the bore thereof one of said partition and facing in a direction opposite to the direction of flow through the conduit, a floating secondary valvular device including a valve element adapted to be moved by the pressure of the flow on to said seat to intercept the flow through the conduit, and extensions for guiding the valve element to and from its seat, said extensions projecting longitudinally from opposite sides of the valve element and slidably mounted in and extending through the aperture in said partitions and a second conduit inserted in the first-named conduit and adapted to engage the adjacent extension to hold the valve element in spaced relation to its seat and thus permit a flow pass the seat, both of said extensions provided with openings for permitting the flow to pass through the same.



In a device of the class described, the combination of a member provided with a bore, a valve seat in said bore, a valve structure including a valve normally closed onto said seat by the pressure of the fluid in said bore, and guiding means for the structure adjustable relative to the seat to insure a proper seating of the valve and to limit the retreat of the valve away from said seat.

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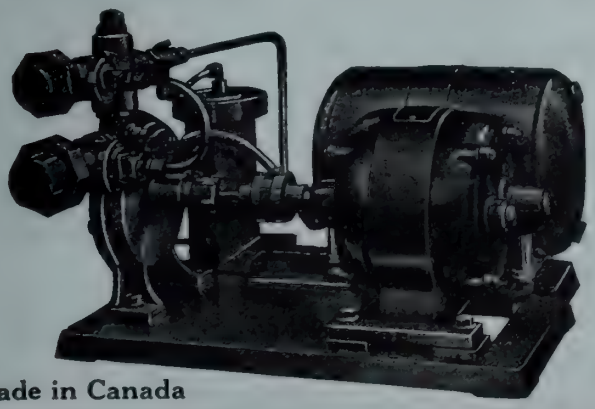

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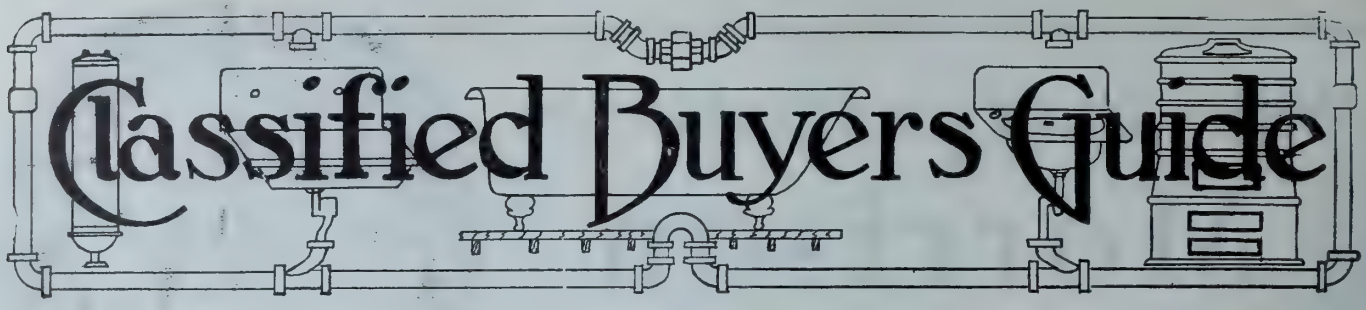

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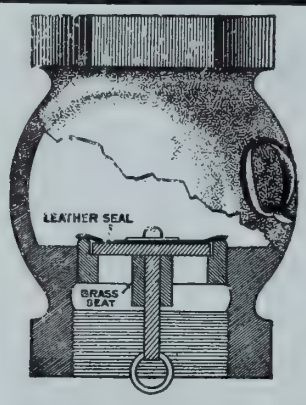

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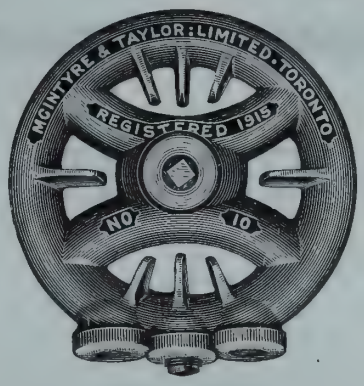

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Qts.-$4.00 Gal. $14.00
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For solidifying sales, and preventing lost accounts, a semi-monthly message to the whole Canadian plumbing and heating trade through Sanitary Engineer, Plumber and Steamfitter of Canada, will prove productive and profitable.

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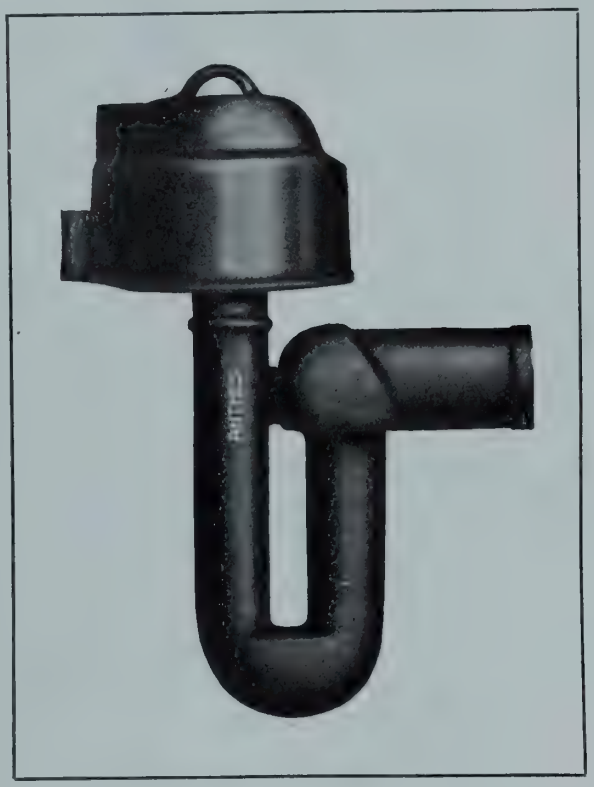

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THE material alone hasn't made the VitrO Tank what it is to the public and the plumbers of Canada.

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The tank that has made thousands of dollars for Canadian plumbers, and won the confidence of Canadian people, is the VitrO—

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VITRO
NO TROUBLE
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Sanitary Engineer
Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, DECEMBER 1, 1920 No. 23

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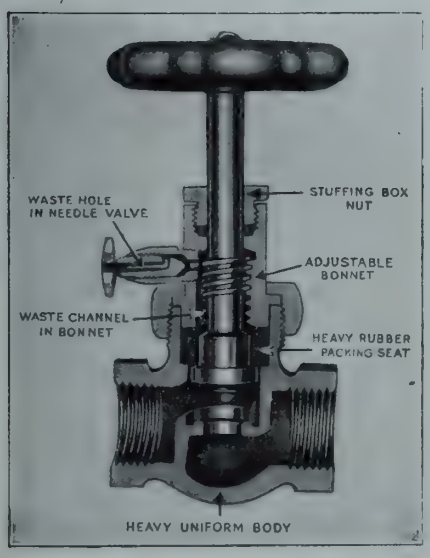
Study the marked points in the cross sections. Pay particular attention to the arrangements for waste water:



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No. 287.

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Again, it is conceded that an average of five persons constitutes a home, which with our case would mean that 6,538,460 people have not conveniences in their place of abode that you offer for sale. In other words, only 25% of our field has been covered.

Just think this over, then hand it to your local newspaper as a news item with our name cut off the bottom. This is really helpful, constructive propaganda—make use of it.

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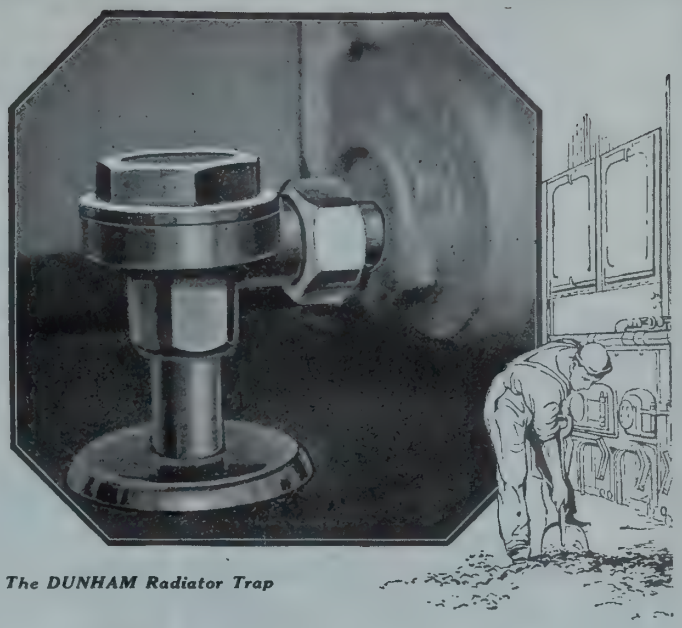

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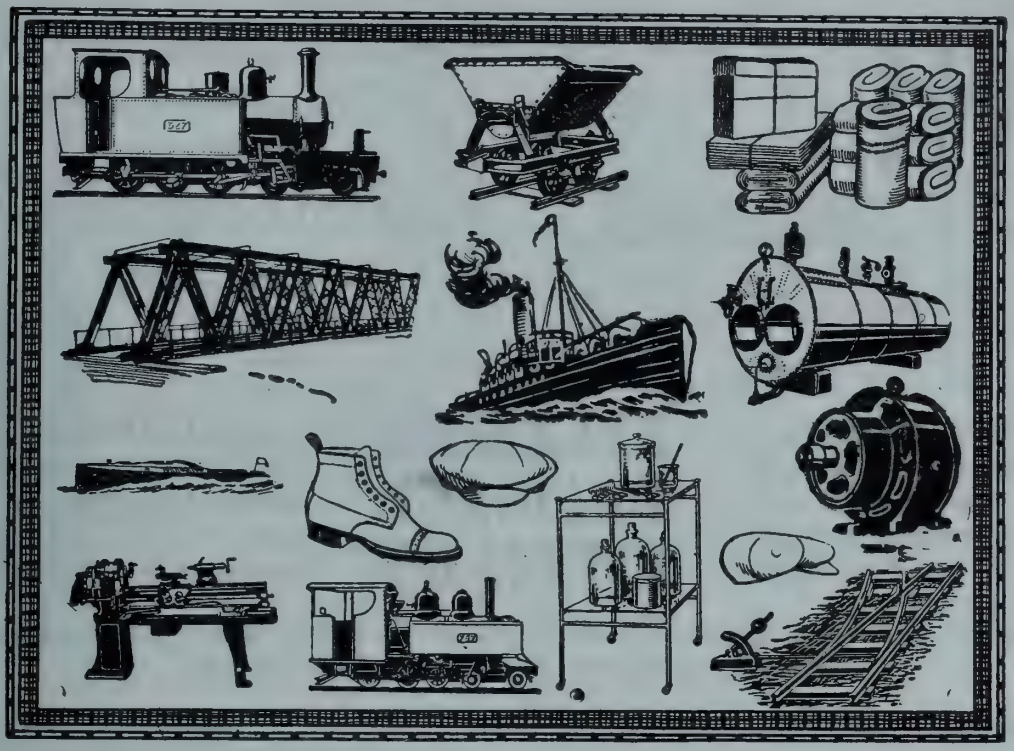

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Made in Canada

The Brand that has the Quality

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With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

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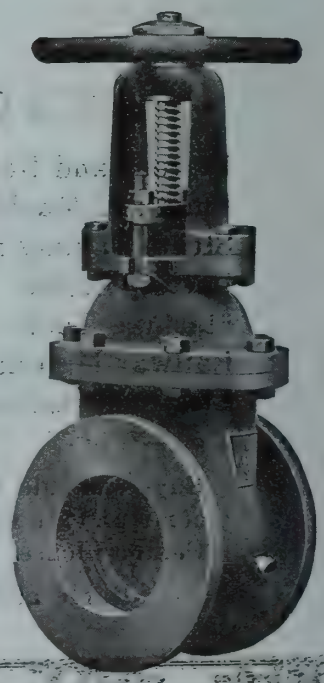
possess those qualities of appearance, strength and stability, combined in a modern design and construction, which characterize HIGH GRADE PRODUCTS.



They insure the best of service, and stamp any job on which they are used as well equipped.

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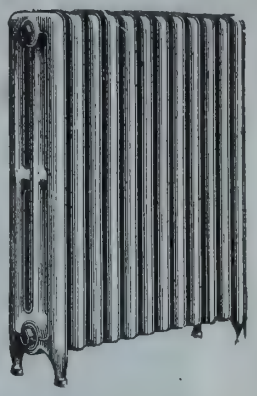

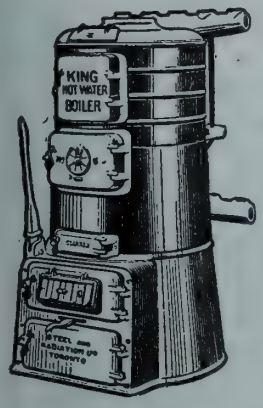

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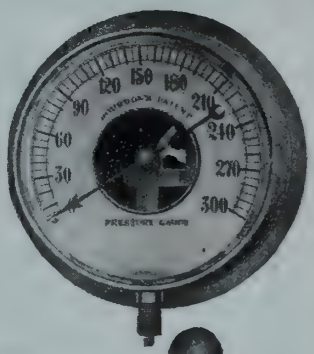

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Agencies in all the principal countries of the world
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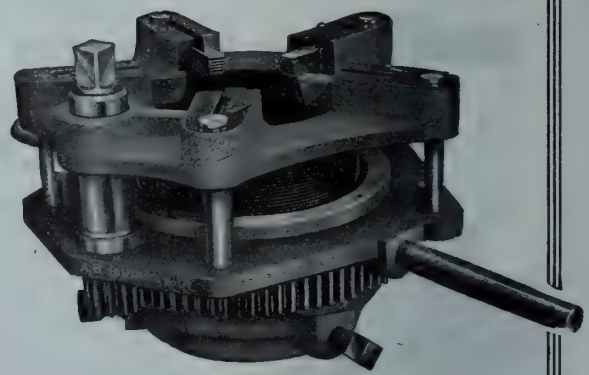
JARDINE and TOLEDO PIPE-THREADING TOOLS



"Toledo" Geared Adjustable Threading Tool, No. 2½. Capacity 2½ to 6 in. inclusive. Weight 120 lbs.

THE ratchet feature of Jardine and Toledo Tools permits their being used to thread pipe which is already in place, no matter how awkward it may be to reach. The Jardine and Toledo has no cams or gimcracks to get out of order; and the dies only cut with the mouth of the cutter. Also, as the tool advances on the thread the dies open out so as to make the proper taper. This means there is no friction on the pipe and every ounce of strength is used in making the cut, so saving time and labor. These are only a few of the valuable features of these tools.

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Sole licensees to manufacture and sell Toledo Pipe-Threading Tools in Canada.
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This handy little Williams' Waste Plug Spanner should be in every kit.

Its small cost and great convenience make it indispensable.

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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

Vol. XIV. TORONTO, DECEMBER 1st, 1920. No. 23

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Material Confidence

Have you confidence in the materials you use? Do you know the wearing qualities of the products you sell? You will build permanent, profitable business if you have a reputation for high quality products and skilled workmanship in every home where you install sanitary fixtures. Many plumbers are building a large trade on the well established merits of C. M. G. Products. How about you?

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ARISTOCRAT LAUNDRY TUBS
AND EASY WIPING SOLDER

Why Thompson Got the Schools Contract

NORWESCO Iron Cement

For large leaks and cracks which cannot be repaired by a boiler compound alone, use NORWESCO IRON CEMENT on the outside of the leak. This iron putty stops the flow of water and hardens rapidly. Boiler SE-MENT-OL will repair the leaks on the inside.

Last February, a serious leak developed in one of the boilers of the Jamestown high school. The janitor realized it must be fixed in a hurry or the building would have to be closed. So he phoned for Larkin, who did most of the school plumbing jobs. But Larkin was out of town and his helper was sick in bed.

The janitor was helpless. What should he do?

Somebody mentioned Thompson, the new fitter who had come to Jamestown only two weeks before. Thompson came in a hurry—looked over the job—said that a new section must be put in.

Then Thompson played his best trump. From his kit he took a can of

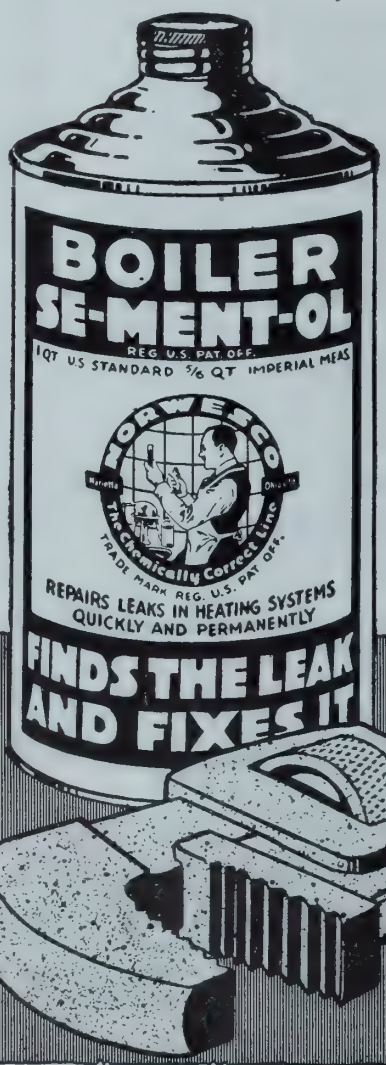
SE-MENT-OL

—and poured its contents into the feed line. The leak was stopped in a few minutes and the boiler carried full steam until the new section arrived almost a week later. The School Board didn't forget Thompson after that. In fact, a month later he was given the contract for all the heating and plumbing work in Jamestown's nine schools.

Have you Boiler SE-MENT-OL ready for emergencies? You'll find it a mighty useful helper on many a job this winter.

Sold by leading jobbers everywhere—in the handy cone-topped can that prevents spilling and wasting. No funnel required. Will not cause foaming; has no disagreeable odor.

There's a coupon below—mail it to-day!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Address.....

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Sanitary Engineer
Plumber and Steamfitter of Canada

Published First and Fifteenth of Month

Vol. XIV. TORONTO DECEMBER 1, 1920 No. 23

Importance of Sanitary Plumbing

Gaudias Brousseau, Quebec, Provincial Vice-President of Canadian Society D. S. & H. E., Addresses Quebec Rotary Club Pointing Out Necessity of Better Sanitary Laws—Action to Be Taken in Quebec Immediately

QUEBEC CITY.—Immediate action will be taken by the Quebec Rotary Club in an attempt to have the civic authorities waken up to the absolute necessity of better building by-laws, including by-laws to regulate and provide for sanitary plumbing in homes and residences. The executive will meet Mr. Gaudias Brousseau, Quebec vice-president of the Canadian Society Domestic, Sanitary and Heating Engineers, and discuss the matter with him and then arrange for a committee to interview the Mayor and the city council and ask them that some action be taken upon the recommendations and suggestions made, asking that the city building by-laws be revised and amended and brought up-to-date for the better protection and health of the people of Quebec.

This decision was reached after Mr. Gaudias Brousseau had delivered at the regular luncheon of the Quebec Rotary Club the very instructive and interesting address, on "Sanitary Plumbing," which follows:

Will I mention all the plumbing fixtures required to make up a modern toilet room, no, gentlemen. Will I tell you what those fixtures are made of? Be they of mineral, vegetable or animal origin, that is of very little importance to us to-day. The subject I wish to treat before you is simply the following: "Sanitary Plumbing." In those two words are resumed the principle set forth in the Rotary Code of Ethics, which reads as follows: "To consider my vocation worthy, and affording me distinct opportunity to serve society."

Rotarians, I will begin with a little questionnaire in which I have included the questions I thought you might like to put to me as well as the answers to those questions.

What is Sanitary Plumbing?

What is sanitary plumbing? Sanitary plumbing is the art of setting up in a scientific, practical, uniform and hygienic manner, drainage pipes and accessories of plumbing and ventilation in homes in general, private or public. What is the principal aim or object of that art? The principal aim is public health and the extension of the life of the citizens. How can sanitary plumbing protect public health and extend o prolong the life of the citizens?

Sanitary plumbing protects public health because it prevents the introduction into the homes through the drainage pipes of those homes, which are connected with the street main drainage pipe, of vitiated and impure gas from the main sewer in the streets.

What means does a city take to insure sanitary plumbing in the homes of the citizens? The only recognized means are the regulation and control of the plumbing work, the appointment of competent inspectors to inspect and test drainage pipes and plumbing fixtures and to see that they conform with the rules and by-laws. Finally to insist that the work be done by competent workers who must be in possession of certificates which indicate they have been admitted to the practice of their trade or profession. If I add profession, it is because I believe it is a profession and I will tell you why before I conclude. Are there any modern cities that are to-day provided with such rules and regulations as we suggest?

Cities All Protect Citizens

Yes, gentlemen, and they are very numerous. In the United States all the towns have been provided with such rules for the last number of years. In Canada it is a little different, yet in certain provinces they are more fortunate than in others in that direction. In the Province of Ontario, the authorities of the following twenty-one cities and towns have understood it was an absolute necessity:

Toronto, Ottawa, Peterboro, Brockville, Mimico, Oakville, Hamilton, St. Catharines, Welland, Niagara Falls, Port Colborne, Brantford, London, Chatham, Windsor, Sarnia, Galt, Preston, Kitchener, Guelph, and Stratford.

Quite recently a draft of a by-law of which I have a copy was submitted for the whole of the Province of Ontario, for the rural districts as well as for the cities and towns, and it only awaits the signature of the Lieutenant-Governor to be put into force.

In the Canadian West all the important cities have such laws and I can assure you all the capitals are quite modern in that direction.

In the Maritime Provinces, Halifax and St. John have had such laws for the last twenty years or more, and which have often been revised and remodelled.

The Province of Quebec has also done something, but unfortunately the number of cities that have modern plumbing laws is very small, the City of Montreal is the only one, which can be referred to with any advantage, its rules and regulations are as good as those of any other city on this continent.

I have here the by-laws of the City of Montreal which were adopted twenty-five years ago, and were abolished by subsequent ones, the last adopted in 1904. The Montreal authorities are now busy, with the aid of the Master Plumbers' Association of Montreal, revising and amending some of the clauses.

No Sanitary Plumbing Here

The City of Quebec is the only capital city in the Dominion which has not yet solved the problem of sanitary plumbing in the homes of the people.

If I appear to attach so very much importance to such a law it is simply because I am convinced of the importance of a code of municipal legislation dealing with that part of the rules and regulations of construction or building and that I am also convinced that you cannot build a healthy, sanitary home without sanitary plumbing.

My intention in naming all those cities where proper plumbing laws exist is to demonstrate that what I am advocating is no new fangled idea nor a dream which cannot be realized, but rather an elementary thing which is an absolute necessity in all and any kind of a home which might be called healthy and sanitary, and that we here in Quebec should

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The Plumbing Trade Outlook

"Facts Justify Replenishing of Stocks at Present Prices," Says One Manufacturer—Difference of Opinion as to Advisability of Stocking Up—Revival of Building Anticipated.

REVIEWING present conditions in the plumbing trade with a number of manufacturers, Sanitary Engineer has received a number of interesting opinions. Some of these are held unanimously by the manufacturers interviewed, while on other points a divergence of opinion seems to exist.

One manufacturer, who claims to voice the opinion of a number of brass manufacturers, states as follows:

"It has been noted that many jobbers and plumbers for the past few months have been very loth to stock up to any extent with plumbing goods. While this may look reasonable in view of falling prices in many commodities, facts actually justify the replenishing of stocks at present prices. Most of your readers know how hard it has been to get goods the past year with poor transportation, big demand, and shortage in some materials, which held up manufacturers. Now, as an analysis of the situation does not show any prospect of a let up in the demand, next year is going to be the same old thing over again. It is easily seen that with increasing immigration, a shortage of houses for five years, curtailed building while the war was on and many other things, there is great need for getting stocks on hand to meet these requirements when they come.

"For the same reason that the United States made so much money when war started on account of having the much-needed raw materials for sale, so will those who have the stock next spring be in an exceedingly favorable position to make money.

Prices Firm For Three Months

'We can see no justification for a reduction in prices for the next three months with labor costs still high. Babson's reports urge the purchase of brass for the next couple of months, which is an exceedingly strong indication that it will maintain the present price level. Copper is quoted at prices that do not show a marginal profit to the smelters, which are now operated under reduced schedules. When present stocks of copper have been absorbed, mines and smelters will then be in a position to resume their former dictatorial attitude and history indicates that they will do this at the first opportunity.

"It looks very much as if the entering of orders now to insure promptness in getting the goods would prove to be very shrewd business."

Business Volume Temporarily Decreasing

In view of the fact that in a great many cases plumbers do not stock up much on supplies such as are referred to, they preferring to draw on the local plumbing supply warehouse for their immediate requirements, which differ according to the nature of the work on hand, the opinion above expressed refers to plumbing supply houses and the larger plumbing and heating operators who carry such stocks. A number of other manufacturers and supply houses interviewed on the subject express the opinion that the volume of business is temporarily decreasing with work now being finished up on new buildings constructed earlier in the season. Lines selling best now are smaller standard lines in bibbs, valves, etc., for heating installations. The opinion seems to be fairly general that building will become active in the spring, but a difference of opinion exists as to future price tendencies and as to the advisability of stocking up. There is no question that prices cannot be reduced much unless labor becomes cheaper. It was stated by some manufacturers that labor counts for considerably more than raw materials and as yet there is little indication of a drop in wages. It is held by some to be undesirable that there be any big cut in wages.

IMPORTANCE OF SANITARY PLUMBING

Continued from page 13

have had a similar law for the last twenty-five years at least, considering we are such an old city.

Protection to Life and Health

No matter how much light and air you could admit through your large windows and the fine big gardens which might surround your homes, they would be of very little use to you in winter here in Quebec where in many houses not only do they close the windows tight, but stuff cotton between the sash and the frame and even in some cases stick strips of paper over the edges so as to keep out even the slightest vestige of air. It is therefore absolutely impossible to have healthy, sanitary homes without sanitary plumbing and ventilation in Quebec where everything is closed tight for nearly six months in the year. Sanitary plumbing and ventilation should therefore be the base of all habitations planned or already constructed.

I have tried to convince you in those few words of the great importance of an immediate law which would provide for inspection of plumbing which could be under the control of the health department. I am now going to attempt to prove to you why and how bad plumbing is a danger and menace to public health, and next we study the remedies which can be applied to do away with the dangers which threaten the community.

You all know that beneath the surface of our streets we have the main collecting sewers to which the sewer pipes and drains of our respective homes are connected. In those mains all the sewage which comes from toilet rooms, kitchen, auto garages, etc., is collected and all that matter fills the sewers with poisonous gas produced by the putrifying masses. That gas is constantly submitted to high pressure and is naturally driven into our pipes which also serve as ventilators for the main sewer if they open into the open air.

I have here a copy of "La Presse," of Montreal, which fully confirms what I have just said. The article is headed: "An interesting paper prepared by the sanitary engineer of the city of Montreal, Mr. Cousineau." I know Mr. Cousineau very well, but I don't know any sanitary engineer of the city of Quebec.

The article says: Ventilation of the public sewers is obtained through the interior piping of the houses. Therefore municipal law prohibiting all hydraulic or other obstruction on the main drain of houses so that air may freely circulate from the public sewer pipes to the top of the roofs of the houses. Therefore all pipes must be perfectly air tight.

Poisonous Gas in Homes

That gas gets into your homes through the smallest opening or defectuosity, through a fissure in the pipe, a leaky joint, or in many cases through faulty and unsanitary plumbing fixtures in sinks, wash basins, lavatories and baths every time that, on account of bad ventilation, in the "elbows" of the pipes connecting those fixtures, the water in those "elbows" is drawn out by the column of air which acts as a syphon when any other fixture or apparatus is operated in a higher storey or even on the same landing.

That vitiated gas which comes from the main sewer which receives all the rubbish from your street and even from neighboring streets if the main does not go direct to the river, will enter your homes with considerable velocity.

If a single drop of water contains so many microbes, how many must not enter your home from that source, particularly when you consider that such operations as referred to above are practically continuous in certain houses?

It is no wonder that the proper authorities stated that there may be found the cause of a great deal of tuberculosis and it is certainly the cause that there are so many patients in our hospitals and particularly in Laval Hospital.

We are told that hospital is too small and we are asked to vote more money

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Charting the Plumbing Business

Charting Enables Plumber to Keep a Mental Picture of What is Meant by Selling Price, Profits, Capital Investment, Etc.

Editor's Note:—Herewith is the fourth lecture of a series prepared by the National Trade Extension Bureau of the U. S. in considering various phases of the plumbing business. This instalment deals largely with chart forms which will show the real meaning of profits, selling price, capital investment, etc. The lecture is reproduced in the form in which it is supplied to master plumber organizations throughout the United States, where it is read before such organizations by some one member. It contains a great deal of very useful information to the trade in Canada as well, and, furthermore, gives some idea of the service which may later be rendered by a similar organization in Canada.

NOW that we understand just what overhead consists of, and what constitutes the yearly volume, we shall again proceed to discuss the percentage unit.

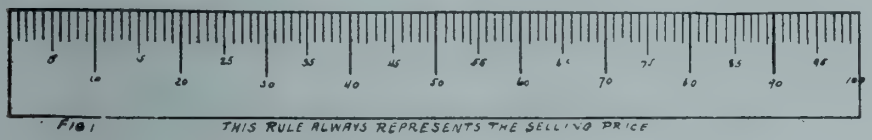


FIG 1

As was stated before, the base of measurement in percentage problems is always one hundred or 100 per cent. Thus in considering any percentage problem involving a selling price, the base, which is the selling price, must always be represented by one hundred or 100 per cent. In order to fix this fact firmly in your minds, see the rule Fig. 1.

This rule, instead of being thirty-six inches long like an ordinary yard stick, is supposed to be one hundred inches long. This one hundred inch rule, as we will term it, represents the selling price of any one article or the total selling price of your entire year's business.

In the future, whenever you think about the selling price of an article or of a job, just recall this picture that your selling price is one hundred inches long.

Now in order to get a little deeper into this subject, let us assume that we did a $15,000 volume of business last year. I will place that figure at the end of the blackboard rule because it represents one hundred inches or 100 per cent.

Our total operating cost or overhead expense as shown on our books, we will say was $3,900 for the year. This amount I will place above the rule at about one-fourth the distance from the end, for $3,900 is about one-fourth of $15,000.

Of course, I am now guessing, and it is needless for me to tell you what becomes of business men that guess. Therefore, we shall proceed to find out exactly what part of our one hundred inch blackboard rule the $3,900 overhead really takes up.

Now, then, one hundred is the total length of our rule, and it represents $15,000, our selling price. Our next move is to find out what one inch of the rule amounts to, so we divide $15,000 by 100, and we find that each inch of this rule, in this case, equals $150. Therefore, to find out how many inches $3,900, our overhead, would equal, we divide $150 into $3.900, thus:

```
150)3900(26
    300
    ---
     900
     900
     ---
```

We find in the result as our answer 26. Therefore, our overhead based on our selling price takes up 26 inches of our 100 inch rule. 26 subtracted from 100 leaves 74.

Therefore, we will draw a line here on our rule at 74.

What Part of the Rule Is Profit

Our next problem is to determine what part of our rule should represent profit. We size up this $15,000 sale and after looking it over very carefully we conclude that we ought to have $3,000 net profit on this volume of business. Anything less than that amount would be too little for the risk we must take.

Again we must figure back in inches on our blackboard rule. We know that, as before, one inch equals $150. Therefore, we divide this into $3,000 to find out how many inches we must allow for profit. Thus:

```
150)3000(20
    300
    ---
```

We find that 3,000 divided by 150 equals 20. Therefore our profit should take up twenty additional inches of our 100 inch rule.

Now, that we are filling up our blackboard rule and have already used up 26 inches for overhead, we subtract the 20 inches from the remaining 74 inches which leaves 54 inches that are still unused.

Now, we know that 46 inches of our blackboard rule is used up for overhead and profit, so the remaining fifty-four inches must stand for our cost of merchandise and labor. Now, let us see if our problem will prove by adding the three sections representing cost, profit, and overhead together; and we find they equal 100 inches.

Remembering that one inch on our 100 inch rule stands for $150, we multiply $150 first by 54, and get $8,100, then multiply by 26 and get $3,900, and finally multiply by 20 and get $3,000. These three when added together bring us back to our $15,000 total volume for the year.

Put Into Practice

Let us see how this works out on an ordinary sale. As an example, we will conclude that we have figured a job of plumbing and the cost of the labor and material and incidentals amounts to $1,080. But how are we going to work this on our blackboard rule? This is simple enough if you remember what I have repeatedly told you. 100 per cent. is always the selling price. From this we must deduct our profit and overhead. This as illustrated a moment ago would equal 46, and 46 deducted from 100 leaves 54. See Fig. 3.

Therefore 54, in this case, equals $1,080, and 54 divided into 1,080—

```
54)1080(20
   1080
   ----
```

results in one inch or one per cent., equaling $20. If one equals $20 then the total 100 inches of the rule or 100 per cent. would be 100 times $20 which equals $2,000, giving us that figure for our selling price.

Now, let us see if that is right. The cost of labor and material is 54 per cent. 54 times $20 per inch equals $1,080

Overhead is 26 per cent. 26 times $20 per inch equals 520

Profit is 20 per cent. 20 times $20 per inch equals 400

Total equals $2,000

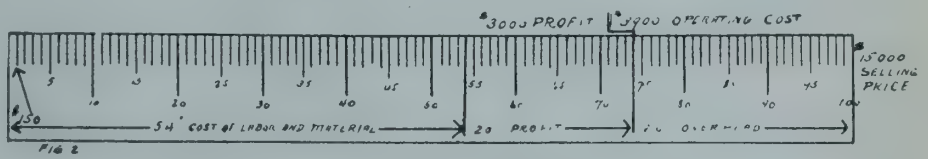


FIG 2

At this time I desire to drive home this one point. We have two figures set out covering two distinct parts of the rule. One represents overhead and one

represents profit. The two added together equal 46 per cent. This represents 46 per cent. of what? Of the cost? Certainly not! It is 46 per cent. of the total 100 inch length of the rule which stands for the 100 per cent representing selling price.

Let me drill this home by pointing out to you at this time a serious mistake

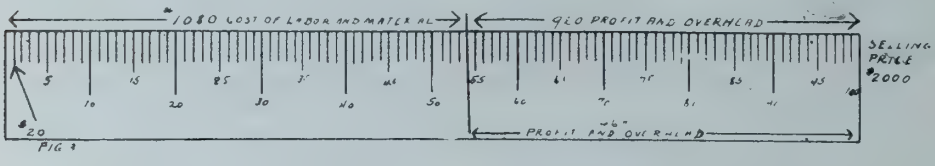


FIG 1

that is made by many business men when they go to figuring.

Cost of labor and material $1080
Multiplied by overhead and profit 46%

6480
4320

Profit and overhead in money..$ 496.80
Plus cost of labor and material 1080.00

Selling price $1576.80

See what I have done? I haven't even gotten back my overhead. You will remember that item alone was $520. So you see there is only one correct way to figure the selling price, and that is as follows:

Figures Selling Price

Add your percentage for overhead and profit together. Deduct the total of these two from 100 per cent. (the length of your rule). The remainder is the per cent. that stands for your cost. Divide this per cent. into your cost price of labor and material. The answer will be 1 per cent. of your selling price. Multiply this last by 100, and you have the selling price.

What is meant by capital investment? Again I shall draw a picture for you so that I can cover this question in a way that will be thoroughly understood.

Please note that a chart is nothing more or less than a story or article boiled down to facts and leaving out the ifs and ands and wherefores. Each statement of fact is enclosed in a box, and these boxes connected by lines to show how they interlock or connect on to one another. Thus, at one glance you can better understand the question that is being considered than you could if you listened an hour or more to a lecture on the same subject.

Capital Investment

At a glance you see that capital invested is composed of owner's capital and borrowed capital. It does not necessarily mean all cash, but it is composed of all of the items set out in the last column in the chart.

At a glance you see here that the owner's capital is composed of cash and the other things in the last column that have been put into the business by the owner or his partner or stockholders.

You see that borrowed capital means all of the money borrowed from the bank, borrowed from individuals, or goods and equipment bought on credit.

Capital Invested	Owners Capital	Your own	Cash	In bank	($1000)
				Cash drawer	($ 100)
			Notes	On hand due you	($1000)
			Trade Acceptances	On hand due you	($ 500)
			Customers Account	Unpaid due you	($1500)
		Partners	Equipment	Tools	($ 200)
				Auto	($1500)
		Stock Holders		Truck	($1200)
				Racks	($ 100)
				Bins	($ 50)
				Desks	($ 100)
				Safe	($ 300)
				Adding Machine	($ 200)
				Business Library	($ 50)
				Drafting Tools	($ 25)
				Typewriter	($ 75)
				Other equipment	($ 150)
	Borrowed Capital	From Bank		Store shelving	($ 300)
		Individual		Counters	($ 100)
		Goods Bought on Credit		Cash register	($ 200)
				Table and chairs	($ 50)
				Show Room Display	($2000)
			Stock	Warehouse stock	($1500)
				Paid for—not delivered	($ 200)
				Material on jobs not charged	($ 250)
				On jobs not charged	($ 400)
			Labor	Building racks, bins, etc.	($ 20)
				Total	($13070)

The chart reveals that the capital invested will be in cash in the bank or in the cash drawer as indicated in the two boxes attached to cash.

It might also be in notes on hand that haven't been discounted.

Or it might be in trade acceptances on hand in the cash drawer.

Box four represents customers' accounts that are still unpaid.

Box five indicates that a part of the capital is invested in equipment such as tools, auto, truck, racks, bins, desks, safe, adding machines, business library, drafting tools. typewriter and other equipment, store shelving, counters, cash register, tables and chairs.

Box six represents the capital invested in stock such as the showroom display, warehouse stock, goods paid for that are still on the road, material delivered on the job and not charged on your books.

The last box represents capital for labor on a job that has not yet been charged on the books. It also indicates that a part of the capital is wages paid labor for building bins or racks and other things about the shop. As a matter of fact, owner's capital and borrowed capital, as shown by the chart, is made up of all of these items listed in these boxes in the last column.

To make this chart more comprehensive, we might go a step further and place the following figure back of each of the boxes in the last column of the chart. Cash in bank $1,000; in cash drawer $100; notes on hand due you $1,000; trade acceptances due you $500; customers' accounts unpaid due you $1,500; tools $200; auto $1,500; truck $1,200; racks $100; bins $50; desks $100; safe $300; adding machine $200; business library $50; drafting tools $25; typewriter $75; other equipment $150; store shelving $300; counters $100; cash register $200; table and chairs $50; showroom display $2,000; warehouse stock $1,500; goods paid for but not delivered $200; material on jobs not charged $250; labor on jobs not charged $400; building of racks, bins, etc. $20.

The total of this would be $13,070.00, which would indicate your total capital invested.

The large chart hanging there on the wall and the small charts which were distributed to you this evening indicate the amount of owner's capital and borrowed capital that should be invested in a business doing a certain volume of business.

By way of example, the chart would indicate that a firm having $13,000 capital invested in the business should do a volume of close on to $100,000 each year. About $9,500 of the total capital should represent the owner's capital and the borrowed capital should not average more than $3,500 in a year.

The above statement does not mean that $3,500 is the limit of capital that this firm should borrow at any one time. This merely represents an average. They could borrow $7,000 for six months during the busy season and nothing at all during the remainder of the year. Thus, the year's average for borrowed capital would be but $3,500.

Important Features of Plumbing Contracts

Importance of Watching Wording of Contracts—How One Plumber Was Misled—Questions of Conflicting Nature in Specifications Should Be Referred to Architect.

Written for Sanitary Engineer by N. A. KEARNS

A CONTRACTOR, as a rule, undertakes to supply all materials, labor, tools and apparatus necessary to the completion of the work in accord with the evident intention of the contract. And he usually undertakes to do this for a certain consideration.

When he once signs the contract he is expected to live up to every term of that agreement. With the signing of the contract he assumes every responsibility that is therein stated—and sometimes much responsibility that does not appear on the face of the contract.

Payments

The terms of payment should be clearly and definitely expressed in the contract.

The time, or times, for making payments should be stated, as should also the sum, or sums, of money or its equivalent as it, or they, may become due.

Payments on contracts generally are made in sums equivalent to 80 per cent. of the value of the labor and materials incorporated in the building. The remaining 20 per cent. is held until the contractor delivers a release of all liens arising out of the contract.

If liens or claims are unsatisfied after all payments are made, the contractor is liable for a refund to the owner. This refund must be equal to the sum that the owner has to pay in discharging such claims.

A contractor can not claim payment for defective work not remedied. Neither can he expect to be paid when there is reasonable evidence of the probable fyling of claims against the property.

If the contractor neglects to make payments promptly for materials and labor, payments may be withheld; just as they may be if there is a reasonable doubt that the contract can be completed for the amount of the unpaid balance.

The contractor must not consider any payments, except the final one, as being an acknowledgement of the owner's acceptance of the work. It is only the making and acceptance of the final payment which constitutes a waiving of all claims, both by the owner and contractor.

When the contractor receives instructions by drawings or otherwise which he believes will run into a cost over the contract price he should give the architect written notice regarding this, and should receive proper authority for doing the work before he undertakes to provide such extras.

Changes in work should never be made save on a written order from the owner and that order should be countersigned by the architect.

Cancellation

A contract may be cancelled if the contractor should neglect to properly prosecute the work. The owner after due written notice may undertake to have the work finished by some other means and to afterwards deduct the cost of such a method from the payments then, or afterwards, due the contractor. However, an independent arbitrator—usually the architect—must approve of such action.

If the contractor violates the provisions of the contract, the owner, upon the referee's certificate that sufficient cause exists to justify the action, may, after due written notice, terminate the employment of the contractor and finish the work himself. In such cases the contractor will not receive any payments that may be, then, due him until the work is finished. If the unpaid balance of the contract price shall be more than the cost of finishing the work, the excess shall be handed over to the contractor; but if the expense of finishing the contract shall exceed the unpaid balance, equity demands that the contractor shall pay the difference to the owner.

If through no fault of the contractor the work should be stopped for some duration of time—say, three months — or if the owner should fail to pay the contractor the sums of money then due, the contractor upon written notice may stop work and recover from the owner payment for all work executed. It is likely that he may also collect a reasonable profit, together with such damages as he may prove.

The Spirit of the Contract

Because equity is the principle on which the laws of our country are based it is only reasonable to suppose that an unfair contract will receive little mercy in our law courts; still we must remember that when a man is foolish enough to sign his name to an unfair contract his difficulties will come long before he seeks redress in a lawsuit.

At one time the letter of the contract may have been the all important thing; but to-day it is the spirit of the contract which counts for the most. It is the simple principle of the contract which the law-court takes into consideration. Sometimes the simple principle is concealed in a multitude of words: yet that principle can usually be ascertained by the exercise of a little common sense.

Two things that the man addicted to sharp practices must understand are that the law courts will not enforce the terms of an unfair contract, and that a contract to be a fair agreement must work both ways: if a penalty clause is inserted in the contract there must be a bonus clause as a consideration.

Now while the things touched on in this article are in the nature of what may be incorporated in the wording of a fair contract, it must be understood that unless these things are incorporated in the signed contract their fairness is of no force. Their absence from the signed contract may be taken as a tacit acknowledgment of the waiving of such rights as they may give the contactor or the owner.

The Cost Plus System

Because of the unstable elements entering into the cost of building to-day, many contractors are unwilling to undertake work on the basis of a fixed price.

The claim is made that the costs of all basic materials are never the same from day to day, and that labor is hard to get and unreliable after it is secured.

Recently, a contractor told us that all of the work he would take in future would be according to the "new scheme of contract."

We do not know where he got the idea that "cost-plus" contract is a new scheme; for as long as we remember the cost-plus system has had its advocates.

At one time, many men thought that the cost-plus system was a safe refuge for the inefficient contractor. Such a belief was engendered by the example of the efficient methods used by the competitive bidder when compared with the blundering methods commonly used by the contractor of weak financial standing.

However the cost-plus system is coming into greater vogue than at any time in the past, so without making any comment on its desirability we shall try and explain just what the cost-plus contract means.

In the cost-plus contract the owner arranges to pay for all materials and labor and, in addition, to pay the contractor a fixed sum for looking after the work.

The fixed sum may be set at 10 per cent of the cost of materials and labor, or it may be set at any other figure agreed to by the contractor and the owner.

Sometimes the contract is made so that the fee is reduced if the estimated cost

(Continued on page 18)

How One Master Plumber Solves the Labor Problem

Editor's Note.—This article is based on the author's interview with a Montreal employer. It contains information of vital interest to every plumber, be he master, journeyman or apprentice. It has the advantage as well of being most timely.

"I HAVE never been an advocate of Union Labor," began this employer. "A while ago I came to the conclusion that we would try it. You may have to take a man on, but if you do you can always let him out if he is unable to do all he claims. One of these Union men came to me a while ago. I did not need a man just then and he came back again later. Finally I took him on and put him on a job. On checking up his work that night I felt that he should have done more, but as I know that a man will sometimes take a while to get his hand in I did not say anything. It happened, however, that I learned from another man that this new employee had been seen, that afternoon, all dressed up. Further enquiry revealed that he was attending a special afternoon meeting of the executive of the Union, of which he was an official. And so I said to him: "Do you think that is fair? Can you not leave your meetings until night? This particular job was wanted in a hurry and I do not like this. Why did you not speak to me about getting away?' And so I paid him off.

Widening the Circle

"These fellows will not stop and consider that every time they make demands for increased wages they are but widening the circle of living costs. Every time they ask for higher pay there must be a higher charge to the customer. Some customers paid this hgher cost and are still paying it. But a great many are not, and will not. They will put off the work they would have done until later when prices are less. Where we used to be able to cover a furnace and pipe job for around $90 it is now worth, say $150. Some people will pay the $150 simply because of the high price of coal, but the higher wages prevent many from having this work done.

"I told my men a while ago that I was going to pay them a bonus. I would not tell them what this would be, but said that it would perhaps amount to 5 cents an hour for every hour they worked during the year. That will, in some cases, amount to probably $100, but no one will know till the end of the year. Some of them have grown restless about it and want it every week. But I said that it would not be paid in that way and that only the men that worked steadily for twelve months would get a bonus. Then I intend, when the year ends, to place these bonuses to their credit at the bank and will give them the pass book. They can spend it if they choose, but it should be a suggestion to them to save it.

"As I have not given out any particulars as to exactly what the bonus will amount to I will figure each man's according to his own worth.

What This is Doing

"I am getting good men and am sure that I will get more of them, for these fellows will talk with their friends. When they are wanting a good job they will come to me, I am sure, because their friends will tell them what a good place our shop is to work in. It will go a long way toward solving unrest and we can see just what each man is doing by his weekly time sheet.

"I came down one morning and one of the men was busy working half an hour ahead of time. I said that he was certainly doing well and that he would surely be earning his bonus. It was fine to see how enthusiastic he was.

"Another thing that I base my estimate of a man on is the care he takes in bringing back little odds and ends off a job. All the material on a given work is charged up to that job, and when returned any fittings are credited. A short time ago one of the men brought in some small things and said: 'Be sure to put those to my credit.' Of course this all counts, and it is surprising how careful the men are to not waste material.

"In another case, where I had figured on a job, the men hurried the work along and finished sooner than I had expected. I was surprised. This meant a greater profit for us, of course, and of it they would get their share."

There is a moral in that story for the employee and the employer. Waste there has been, and will be. But it can be reduced greatly through the adoption of methods such as have been suggested by this employer When there is fault to be found with the men he does it in such a way as to not antagonize. He speaks frankly, but kindly withal. This, with a fair-minded plumber or steamfitter cannot but be appreciated. He will see the saneness and the reasonableness of the employer's contentions. And a heart-to-heart talk with one's men, as in this case, will very undoubtedly result in better work, better feeling, and a generally-improved attitude around the shop at all seasons. Now, with labor problems so serious, this treatment all around ought to work wonders.

IMPORTANT FEATURES OF PLUMBING CONTRACTS

(Continued from page 17)

is over-run. For instance: if the contractor gives an estimate of $20,000 and the actual cost is $23,000, then $300 is deducted from the fee of $2,000 first decided upon.

Then, on the other hand, if the actual cost of the work should be $15,000, the contractor collects 10 per cent. on the saving, viz., $500. Thus making his fee $2,500. In this way some encouragement is given the contractor to keep the actual cost within the estimated amount.

Some owners do not believe in the bonus fee; because they believe that the contractor may hold the contract price down so far that it will affect the value of the work. We mention this for what it is worth.

In drawing up a contract of this kind it should be plainly stated just what costs are to be placed against the contractor's fee. In one case, that we know of, the owner professed to believe that the contractor had to pay the salary of the time-keeper out of the amount received as a fee.

The costs may be listed thus:

1. Those to be paid directly by the owner.
2. Those to be paid by the contractor and then paid to him by the owner.
3. Those to be borne by the contractor as expense against his fee.

Generally the contractor considers that the following costs should be borne by his fee.

1. Salary of the contractor, or the salary of any officers of the contracting firm.
2. The salaries of the persons employed in the contractor's office.
3. The contractor's overhead and general expenses.
4. The interest on capital used by the contractor as his expenditures on the work.
5. All loss due to negligence.
6. All loss due to defective work.
7. The loss due to inefficient purchasing.
8. Excess cost loss.

If the contractor does not buy the material he naturally can not be held responsible for inefficient purchasing or excess loss.

We can not now go further into the cost-plus contract system, but hope that at a later date we shall have an opportunity of taking the subject up in detail. There is much to be written with regard to the most efficient business methods of handling contracts of this type; however, the principle underlying this class of contract is the same principle as that at the base of a fair fixed price contract. That principle can be best indicated by this rule:

"Never sign a contract that is not perfectly fair to all parties concerned; and, remember that you are one of the parties concerned."

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

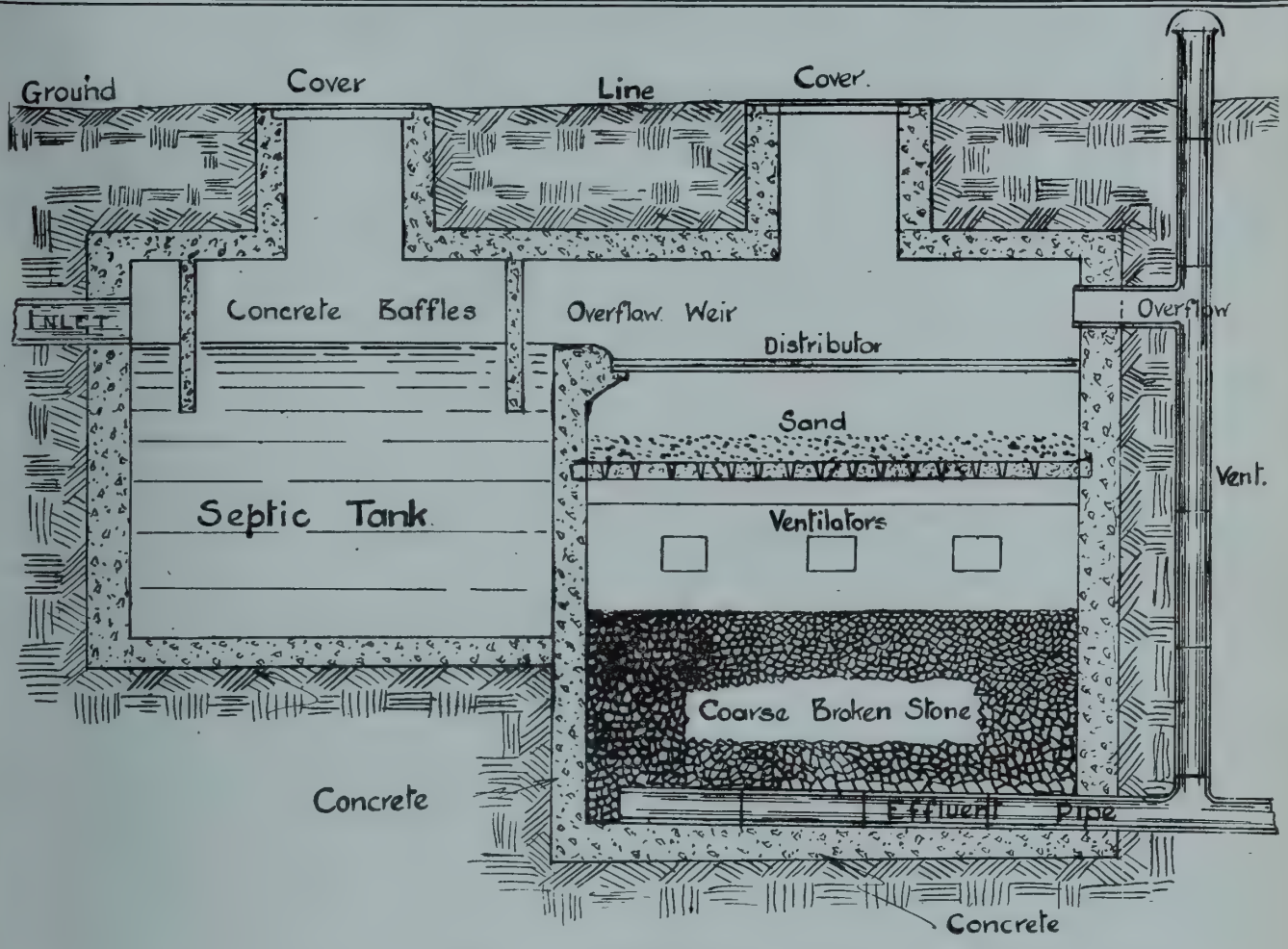


FIG 28

Article No. 21 of the Series—Illustration No. 28

(Continued from last issue)

In this form of tank treatment sewage is passed through similar settling tanks but before entering certain chemical mixtures which act as precipitation are well mixed with the sewage and considerably aid the settlement of the suspended matter, leaving a clear classified tank effluent.

This system, except in special cases where the sewage contains a large quantity of manufacturer's waste, is not to be recommended as it is more expensive and increases the bulk of sludge 30 per cent., which means more frequent cleansing of tanks besides leaving behind the disposal of a greater quantity of sludge which is usually the one great difficulty to be overcome in modern sewage disposal works.

Several chemical mixtures have produced good results including lime, which combines with the carbonic acids forming carbonate of lime and with sulphuric acid to form sulphate of lime. Both of these are insoluble in water and settle to the bottom, bringing down the floating organic matters in suspension. Ferrous and ferric sulphate and sulphate of alumina have been used with good success in precipitation.

The amount of chemical necessary and the kind to adopt depends entirely upon the strength and character of the sewage and definite proportions are governed only by actual tests of the sewage to be treated.

EDITIORAL COMMENT

THE BUILDING OUTLOOK

THE present condition in the general market has been brought about by a lack of buying interest due to the thought that prices which recently commenced to decline will reach still lower levels. Apart from its effect upon the building industry this condition seems to have had little effect upon plumbing and heating work. Price tendencies on plumbing and heating installations, repair parts, etc., have been fairly firm with recent advances on enamelware. Some manufacturers predict the continuance of firm prices. There is no question the building industry has been impeded a good deal by this condition and until a change is made plumbers will be forced to continue to develop business in other fields. Some optimistic predictions are being made as to the revival of building activity in the spring and some of these reports seem to be authoritative. There is no question that more housing accommodation is urgently needed and it is thought by some that the stabilizing of prices will be fairly well advanced by the time building could be commenced in the spring. Meanwhile a close watch should be kept on stock and credits, and an eye kept on business developments particularly in the plumber's own locality where the first indication of improvement may be seen.

A PLUMBER'S INFLUENCE

PROOF is not wanting that the plumber can exert a tremendous influence in bringing about the improvement of sanitary conditions in his own community. This fact is again confirmed by the experience of Gaudias Brousseau, a plumber of Quebec City, who, by putting details of the insanitary condition of the city before an influential local organization, secured quick action to have conditions remedied. Plumbing is a profession is so far as it concerns sanitation and the safeguarding of the public health. The plumber who is thoroughly acquainted with the importance of his work should therefore be able to act in an advisory capacity to bodies which have the welfare of the community in their control. This is the plane on which the plumbing trade should be moving. True it is to be desired that through some co-ordinated effort the plumbing trade should be so recognized and plumbers called to act on local boards of health and sanitary inspectors' staffs, but while some steps are being taken along this line it is not amiss for the individual plumber to use every opportunity of demonstrating the importance of his work.

The unsanitary conditions with which Mr. Brousseau had to deal in Quebec are probably more serious than in most centres, but every district has its shortcomings. Conditions which will make for the absolute safeguarding of public health in every community are still far distant and efficient plumbing will be an important factor in bringing about that state of affairs.

Mr. Brousseau drew a comparison between conditions in Quebec and those prevailing in other cities where plumbing work is controlled, where competent inspectors are employed to inspect drainage pipes and plumbing fixtures, where every worker must be in possession of certificates. The organization addressed was astounded at the seriousness of the condition which had been brought about by neglect. The meeting represented many of the leading business men of the city, and it is significant of the amount of educational work which must be done that such men failed to recognize that the lack of proper plumbing regulations and inspection was bringing to their front door one of the greatest dangers which they or their families could face. The continuance of such neglect would not only increase the menace in that particular case but a bad example would be set to surrounding communities and eventually the effect would be multiplied many times.

There is no reason why plumbing and heating commodities should not enjoy the same demand that other lines enjoy. The plumber has many good arguments at his disposal and the best use should be made of advertising window displays, and other mediums for sending these arguments home. Constantly hammer at the prospective buyer and change the mind of the indifferent customer.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGE

Three Rivers, Que.—Chas. Hamelin & Fils have dissolved partnership.

NEW FIRMS

Sault Ste. Marie, Ont.—W. B. McKague & Co., have commenced a plumbing business.

INCORPORATION

Cap de la Madeleine, Que.—H. Massicotte & Freres, Ltd., plumbers, have obtained charter.

O. L. ROBB JOINS THE BENEDICTS

An event of interest to the trade was the marriage of Oscar Llewellyn Robb, Toronto manager of the Empire Brass Mfg. Co., on Wednesday November 24, to Miss Margaret Mildred Dodds, Orangeville, Ont. Mr. Robb is better known as "Lou" and has a wide acquaintance among the trade in both eastern and Western Canada, having covered the West for some years. Included among friends who went to Orangeville to see that the ceremony was properly conducted were C. F. Stevens, London, Ont., son of the president of the firm, accompanied by his wife; G. F. Allan, Hoyt Metal Company; Mr. and Mrs. J. Tunnedine; Mrs. A. E. Attwell, Cleveland; Mr. and Mrs. Ironside, Colonel and Mrs. Cockburn; Mr. and Mrs. W. H. Cunningham, Toronto. There were about fifty guests in all. The bride and groom were unattended, Mr. Robb desiring that he be the only "best man." The happy couple left for New York, Atlantic City and other points and on their return will reside at Pine Crescent, Balmy Beach, Toronto. Sanitary Engineer extends congratulations.

PIPE PRICES MAY BE EASIER

Advices to hand from the United States' mills indicate that there has been a decline on wrought iron pipe approximating 7 1-2 per cent. This is an indication that is looked upon most favorably by the trade here. Skelp is produced so extensively in the States as to make the Canadian trade practically dependent upon that market. It is but natural to anticipate an early downward revision here, even though supplies are still on the short side, on small sizes.

Pipe plays so important a part in the average plumber's plans as to have first consideration when estimates are being made. Added to the inconvenience caused by short stocks, the cost basis has been so high as to make estimates much higher than they were a few years ago. Unquestionably, a lowering price basis for next spring will help stimulate demand, and any downturn in the list will be welcomed.

PLUMBING TENDERS ON LIVE STOCK ARENA

Toronto.—Plumbing and draining tenders of $42,900, $44,000, 47,255 and $45,260 have been submitted in connection with the new live stock arena to be erected at the Exhibition.

RECOMMENDED AS ENGINEER

Kingston.—Howard Dick, at present acting city engineer, was recommended for the position permanently at the meeting of the Board of Works. Mr. Dick has been on the staff of the Board of Works since graduating from Queen's in 1913, and has been acting engineer since August.

DUPLICATE WATER SYSTEM IN TORONTO

Toronto.—Mayor Church has made the rather startling announcement that the city would have to raise approximately $60,000,000 on capital account next year, of which some $24,000,000 was required by Works Commissioner Harris for various public works, including a duplicate water works system, estimated to cost $15,000,000.

PLUMBER'S TORCH CAUSES BLAZE

Halifax, N.S.—Fire which originated from a plumber's torch used in removing the plumbing from one of the Relief Blocks at the Exhibition Grounds gutted one end of the building.

Robert Dockrill, one of the plumbers who were at work on removing the plumbing, had his hand badly burned when the torch is said to have exploded and caused the fire.

NEW RESERVOIR COMPLETED

London, Ont.—Concrete work on the Springbank reservoir has been completed. A few finishing touches are required before the huge basin is ready to become part of the city's water supply system. A concrete rim will be placed around the top and other minor details added.

Plenty of water is available. The old reservoir is full to the brim and some of the pumps are not running. When all of them are in operation the new reservoir can be filled in a very short space of time.

JOINT BORDER SYSTEMS OF WATER WORKS DEFERRED

Windsor.—Because of industrial conditions and the unstable state of the money market, the plan of the Essex Border Utilities Commission to take over the Windsor and Walkerville waterworks for a joint system to serve all the border municipalities will not be submitted to the ratepayers of the interested municipalities at the January elections.

THE "ANNUAL" PIPE BURST

Montreal.—One of the large water mains conveying the necessary quantities of water to citizens and plants, burst a few days ago, with the result that damage and inconvenience followed. Usually, about this season of the year, an accident of this nature occurs. This one was unfortunate in that two bad fires were on at the time and for one of them the water pressure is said to have been quite inadequate for a while.

ORGANIZE A. J. RUDOLPH CO.

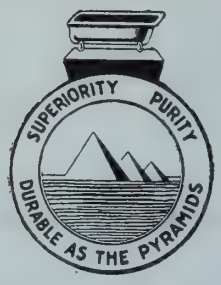
Announcement is made of the organization of the A. J. Rudolph Company in Philadelphia for the handling of their own plumbing specialties, perticularly the A. J. Rudolph non-syphonic, self-scouring trap and the new Rudolph metal-to-metal connection between plumbing fixtures and drain pipe. Alfred J. Rudolph, the inventor of the specialties, is president of the company. A number of men actively identified with the trade are associated with him. The headquarters of the new firm are No. 1421 North Twentieth Street, Philadelphia, and the factory is at No. 139 North Third Street.

EXPECTS BUILDING ACTIVE IN SPRING

Hamilton.—Building Inspector W. J. Whitelock hazards the opinion that the construction of moderate-priced homes will be launched on a broad scale in this city next spring.

Several builders and investors had conferred with him on conditions of the trade during the past few days, and all of them had signified their intention of commencing operations about next April. One man, an investor, showed the inspector plans for the erection of 35 houses in the northeast part of the city, which will be built in April. The cost of these houses will run from $3,000 to $3,200.

Both the cost of labor and that of material will, it was claimed, be somewhat cheaper by spring.



Only One Bath Tub

THIS statement is made by the U.S. Department of Agriculture after a nation-wide canvass of farmers' homes.

The same investigation revealed that while only one home out of every five had a bath tub, nine out of every ten homes had sewing machines. This is a startling revelation when Sanitary equipment is so essential to comfort, health and happiness.

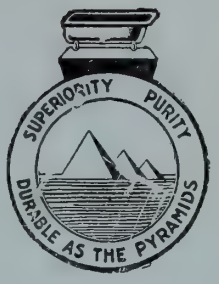
In the barn and for outside work on the farms there are all sorts of equipment and conveniences. But in the home farmers' families are still drudging away without sanitary equipment necessary to civilized living.

Port Hope Sanitary

Factory:
PORT HOPE, ONTARIO

Toronto Show Rooms:
119 KING ST. EAST

Winnipeg Office:
405 TRIBUNE BLDG.



) Every Five Homes

The Department of Child Welfare at Washington gives out the following figures in order to show the great need of sanitary facilities in the home :

1. Where water must be carried into the house from outdoors, the death rate of babies is 198 out of every 1,000.
2. Where water is piped into the house from city services, the death rate decreased to 117 out of 1,000.
3. Where there are bath tubs connected with running water and sewerage, the death rate decreasd to 72 out of every 1,000.
4. In homes where there are water closets, the death rate is 108 out of every 1,000.

While the statistics given here refer to conditions in the United States they are equally, if not more, relevant to Canada. Plumbers will not wonder why nine out of every ten homes have sewing machines when they consider how active agents for sewing machine companies have been in canvassing the farmers' homes.

Plumbers in placing these facts before farmers, as sewing machine agents have done, will bring them to the right point of installing sanitary equipment in the home, that is necessary to health, comfort and prosperity.

g. Company, Limited

Halifax Office:
BLDG., HOLLIS ST.

Head Office:
ROYAL BANK BUILDING, TORONTO

Montreal Showrooms:
234 BEAVER HALL HILL

Tenders, Contracts Awarded; Construction, Etc.

WATERWORKS AND SEWERAGE TENDERS

Eastview, Ont.—New tenders for construction of sewer costing $20,000 for town will be called next year.

* * *

Wingham, Ont.—Council plans to submit by-law to ratepayers for drilling a new well, increasing capacity of reservoir and laying new mains in district north of river. Estimates will be secured as soon as possible. John F. Groves, clerk.

* * *

Vancouver, B.C.—F. L. Fellowes, engineer, will receive tenders for construction of water mains estimated to cost $10,000. City will call tenders shortly for 2,650 feet of 16-inch steel riveted pipe. Plans with engineer, City Hall.

* * *

Vancouver, B.C.—Tenders will be received by City Purchasing Agent until Dec. 7th (time extended), for 10,000 feet of 16-inch steel pipe. Plans with F. L. Fellowes, engineer.

PLUMBING AND HEATING TENDERS

Westmount, Que.—Bremner Norris & Co., Ltd., 65 McGill College Avenue, will receive tenders for plumbing and heating for five residences costing $70,000.

* * *

Toronto, Ont.—John Jones, 294 Rushton Road, is erecting a duplex residence costing $10,000 and will receive tenders for plumbing and hot water, hot air and combination heating.

* * *

Edmonton, Alta.—R. H. Trouth, architect, Chisholm Block, Edmonton, is awarded general contract for erection of a warehouse costing $40,000 for Alberta Dairy Supplies, 9923 101st Ave., Edmonton. Tenders will be received for plumbing and heating.

* * *

Toronto, Ont.—Contracts for plumbing and heating for plate mill costing $200,000 for Northern Aluminum Co., Ltd., 158 Sterling Road, will not be awarded until next year.

WATERWORKS AND SEWERAGE CONTRACTS AWARDED

Montreal, Que.—Contract for reconstruction of foundations and one new pump costing $8,500 at Craig Street sewage pumping station for city is awarded to Mason Regulator & Engineering Works, 153 Dagenais Street.

* * *

Amherstburg, Ont.—General contract for construction of water mains and sewer for town is awarded to Pettypieces, Ltd., Seymore Street.

* * *

Montreal, Que.—Rondou Courlier & Co., 3227 Christophe Colomb, have general contract for construction of brick sewer costing $14,000 for city.

PLUMBING AND HEATING CONTRACTS AWARDED

St. Laurent, Que.—Plumbing contract for five residences (two-family) costing $50,000 for town is awarded to A. Lefrancois, 176 Principal Street.

* * *

Toronto, Ont.—Heating contract for three residences costing $7,500 each for Horace J. Maughan, 161 Indian Grove, is awarded to A. H. Powers Furnace Co., 1 Hayden Street. Plumbing contract is placed with Wm. Howard, 43 Howland Avenue.

* * *

Toronto, Ont.—Plumbing contract for two residences costing $7,500 each for H. E. Warrington, 82 Wheeler Avenue, is awarded to E. Emmott, 51 Amroth Street. Heating contract is placed with Toronto Furnace & Crematory Co., Ltd., 111 King Street East.

* * *

Windsor, Ont.—Plumbing and heating contracts for three residences costing $12,000 for L. J. Lafontaine, 341 Pitt Street East, are placed with Windsor Hardware Co., 147 Sandwich Street East.

* * *

Vulcan, Alta.—Plumbing and heating contract for addition to bank costing $40,000 for Canadian Bank of Commerce is awarded to A. Gordon, Vegreville, Alta.

* * *

Quebec, Que.—Additional contract for garage costing $25,000 for France Pare, 196 St. Francois Street: plumbing and heating, Nap. Lepage, Bienville, Levis.

* * *

Anyox, B.C.—Plumbing and heating contracts for branch bank of Canadian Bank of Commerce costing $35,000 are placed with Barr & Anderson, 1060 Homer Street, Vancouver.

* * *

Whitby, Ont.—Plumbing and heating contracts for building for acute insane patients costing $220,000 for Provincial Government, Department Public Works, are placed with Purdy Mansell, Ltd., 63 Albert Street, Toronto.

* * *

Winnipeg, Man.—Additional contracts for erection of Medical College at cost of $166,000 for University of Manitoba are: plumbing and heating, Bowyer & Boag, Ltd., 45 Olivia Street.

* * *

Montreal, Que.—Additional contracts for school costing $258,000 for Protestant School Commission, 35 Belmont St.: plumbing and heating, D. A. Bethune 483 Bleury Street.

* * *

Lindsay, Ont.—Heating contract for church costing $17,000 for Queen Street Methodist Congregation is placed with Boxall & Matthie, Ltd., Kent Street. Plumbing contract is placed with H. Morrison, Lindsay, Ont.

Sydney, N.S.—Plumbing and heating contracts for Methodist church costing $90,000 are placed with H. G. Hagen & Co., Ltd., 452 George Street.

* * *

Amherstburg, Ont.—Ralph Traveniti is erecting a residence costing $5,500 and awarded plumbing and heating contracts to Ryan & Co., Gore Street.

* * *

Kitchener, Ont.—Contracts for heating and plumbing for four residences costing $4,000 each for Menno Koch, Conestoga, Ont., are awarded to H. Forler, Cedar Street North.

* * *

Moncton, N.B.—Plumbing contract for double residence costing $9,500 for Harry B. Meynall is awarded to Edgar LeBlanc, 72½ George Street.

* * *

Windsor, Ont.—A. Landring, 1 Ouellette Avenue, is erecting a residence costing $5,000. R. Paddon & Co., Sandwich Street East, have plumbing and heating contracts.

C. R. Watson, 11 East Lanard Street, is erecting a residence costing $5,000. R. Paddon & Co., Sandwich Street East, have heating and plumbing contracts.

Plumbing and heating contracts for residence costing $5,000 for J. C. Cocheran, 229 Erie East, are placed with R. Paddon & Co., Sandwich Street East.

Border Cities Co., Ltd., 1 Ouellette Ave., will erect a residence costing $5,000 for W. G. Dirling, 708 Gladstone Ave. R. Paddon & Co., Sandwich St. E.,

CONSTRUCTION AND RENOVATION

Deloraine, Man.—J. H. Russell, 1110 McArthur Building, Winnipeg, will call tenders early in spring for erection of hospital costing $16,000 for Provincial Government and Hospital District.

* * *

Dorin, Ont.—M. Peacock, secretary-treasurer Consolidated School Board, Thunder Bay District, will receive tenders, no closing date set, for erection of a school to cost $32,000. W. W. La Chance, architect, 98 St. Paul Street, St. Catharines, Ont.

* * *

Drumheller, Alta.—Harold A. Brown, secretary-treasurer, Drumheller S. D. No. 2472, will call tenders March 1, 1921, to close April 1, 1921, for erection of a school to cost $30,000.

* * *

Gladstone, Man.—Tenders will be recalled in the spring for erection of school costing $50,000 for Gladstone S. D. No. 70.

* * *

Hamiota, Man.—Erection of a hospital is planned by Municipality of Hamiota. Joseph Andrews, secretary-treasurer.

* * *

Meeting Lake, Sask.—Claude King, secretary-treasurer, Meeting Lake, will receive tenders, no closing date set, for erection of school to cost $12,000 for School Board. W. W. La Chance, architect, 98 St. Paul Street, St. Catharines, Ont.

Kilgard, B.C.—Tenders will be called by public works engineer, Victoria, B.C., for erection of a school costing $5,000 for Provincial Government.

* * *

Melita, Man. — By-law authorizing erection of a hospital was recently defeated, but it will be again submitted to the ratepayers early in the spring.

* * *

Oak Lake, Man.—The erection of addition to school for Oakwood S. D. No. 439 has been postponed and tenders will be re-called in the spring.

* * *

Provost, Alta.—A by-law will be submitted to ratepayers shortly authorizing erection of a hospital of modern construction.

* * *

Vancouver, B.C.—A. E. Henderson, architect, Davis Chambers, has completed plans of addition to orphanage costing $6,000 for city.

Unfinished Y. M. C. A. Building has been turned over by Y. M. C. A. to creditors who have spent $180,916 on construction to date. Creditors have two deals on now to dispose of premises, one for a large apartment building and other for a hotel. Alterations in either case and completion of building will cost approximately $400,000. Dr. Jean Carson, secretary-treasurer of Y. M. C. A.

* * *

Victoria, B.C.—Wood & Richards, architects, B. C. Permanent Loan Building, Victoria, are preparing for club house to cost $40,000 for Victoria Golf Club, Oak Bay, Victoria.

A decision in connection with erection of a Synod Hall costing $110,000 for Anglican Church Congregation has been reached, and J. C. M. Keith, architect, Sayward Building, is preparing plans and will call tenders, no closing date set.

* * *

Winnipeg, Man.—Funds have been raised and Immaculate Conception (R. C. Church), 191 Austin Avenue, will erect a recreation hall next spring. Rev. Father A. A. Cherrier, parish priest.

* * *

Plans for school costing $40,000 for Winnipeg Hebrew Free School are being revised and tenders will be re-called early next spring. M. Blankstein, architect, 450 Dufferin Avenue.

* * *

Montreal East, Que.—General contract for alterations to club house at 3421 Notre Dame Street East costing $10,000 for Royal Trust Co., 105 St. James St., is awarded to J. Gilletz & Co., 32 Mayor Street.

* * *

Moose Jaw, Sask.—A. E. Hamilton, corner 5th and High Street West, has general contract for erection of a rink costing $50,000 for Arena Rink Co., Moose Jaw.

General contract for alterations to Main Street branch bank at cost of $12,000 for Imperial Bank of Canada is awarded to A. W. Wells, Cartier Avenue.

Toronto.—Dowswell & Dolphin, architects, have drawn plans for proposed $4,000,000 Buckingham Hotel.

* * *

Toronto.—General contract for erection of a warehouse costing $60,000 for United Drug Co., 78 Broadview Avenue, is awarded to L. E. Dowling, 167 Yonge Street.

* * *

Riverhurst, Sask. — McCarty, Thompson & Stillwell, care H. Edwards, consulting engineer, Winnipeg, are awarded general contract for erection of a branch bank costing $26,000 for Canadian Bank of Commerce.

* * *

Canora, Sask.—Work on erection of Nurses' Home costing $19,000 for Hospital Board is held up until spring. No sub trades have been let. R. M. Thompson, architect, Bank of Nova Scotia building, Saskatoon.

* * *

Point Grey, B.C.—Frank McQueen, architect, 626 Hastings Street W., Vancouver, will call tenders about Dec. 1st, no closing date set, for erection of ten residences estimated to cost $40,000 for Faulds, McQueen & Pearce, 626 Hastings Street West, Vancouver.

* * *

David Shantz, 1210 Jervis Street, Vancouver, is building a residence and garage costing $12,000. H. H. Gillingham, architect, 1402 Tower Bldg., Vancouver.

* * *

Portage La Prairie, Man.—R. J. Batters, Portage La Prairie, plans to erect a residence and barn at cost of $8,000. Sub trades will be let.

* * *

Coalhurst, Alta.—J. Admark, Lethbridge, Alta., has general contract erecting a lodge costing $10,000 for L.O.O.F. Lodge. Excavating contract is placed with T. R. Davidson, Coalhurst.

* * *

East St. John, N.B.—General contract for alterations to hospital at cost of $15,000 for St. John County Hospital is awarded to Stephens Construction Co., Ltd., 16 Canterbury Street, St. John.

* * *

Hyas, Sask.—General contract for erection of school costing $15,000 for Hyas School Board is awarded to Waterman & Waterbury Mfg. Co., Ltd., Donahue Block, Regina.

* * *

Regina, Sask.—Moore & MacWilliams, Cornwall Street and Fifth Avenue, Regina, have general contract for erection of fire hall costing $55,950 for city.

* * *

Montreal, Que.—O. Archambault, 610 Park Lafontaine, has general contract erecting a residence costing $6,500 for Herbert & Co., Ltd., De Bresoles Street.

General contracts for four residences and one store costing $32,000 for E. Bissonnette, 178 Stadacona Street, are awarded to Sauvageaus & Bissonnette, Stadacona Street. General contractors will receive tenders for several sub trades.

Sackville, N.B.—General contract for erection of addition to college at cost of $45,000 for Mount Allison College, Sackville, is awarded to Rhodes Curry Co., Ltd., Amherst, N.S.

* * *

St. Thomas, Ont.—Jones & Spry, 381½ Glebe Street, London, Ont., have general contract for improvements to public building for Dominion Government, Department of Public Works, Ottawa.

* * *

Winnipeg, Man.—General contract for erection of Deaf and Dumb Institute (two buildings) costing $621,000 for Provincial Government, Department of Public Works, Winnipeg, is awarded to Carter-Halls-Aldinger, Ltd., Union Bank Building, Winnipeg. All sub trades open.

* * *

Quebec, Que.—City will erect a building at cost of $20,000 for the tuberculosis dispensary, disinfecting plant, morgue and garage for the city ambulance. H. J. J. B. Chouinard, clerk, City Hall.

SEWER CONNECTION WAR IN PETERBORO

Peterboro.—The city has sent a gang of men armed with picks and shovels across the border into Monaghan township to carry out the instructions of the City Council, to tear up the connection made by William Grady to the city's trunk sewer, which passes his store and residence at the southeast corner of Lock and Lansdowne Streets. From all accounts the men set to work as vigorously as did Mr. Grady's gang a week ago when, beginning at six o'clock at night, they had dug the trench, laid the pipes, filled in the earth and called it a job just before daybreak.

WINTER CALLS HALT IN SCARBORO WORKS

Owing to the recent snowstorms and the apparent approach of winter, work has ceased in connection with the laying of water mains for the Scarboro Water Area No. 1, in the vicinity of Birch Cliff. To date about five miles of pipe of various sizes has been laid. During the winter months the engineers contemplate the construction of a pumping station and intake well, and the system will probably be ready for use early next spring.

NEW RESERVOIR FOR HAMILTON

Hamilton.—E. R. Gray, city engineer, notified the Works Committee that there was a big crack in the James Street reservoir and that seepage was leaking under the James Street incline. There might be a huge bill of damages presented, he declared. Repairs had been tried and proven inadequate. The only remedy was an enlarged and tightened reservoir and an auxiliary, the total cost being estimated at $400,000. The engineer believed that a by-law could be prepared for submission to the ratepayers in January.

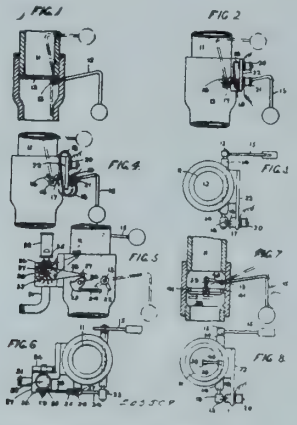
NEW CANADIAN PATENTS

(Issued for Plumbing and Heating Goods)

NO. 205,509. PIPE SAFETY APPARATUS

Charles Leslie Stokes, Wallsend-on-Tyne, Northumberland, England.

In safety apparatus actuated on the failure or commencement of the flow of a fluid through a pipe, the combination



of a pipe, a moveable member within the pipe, extending transversely thereacross, a resilient resistance against the action of which said movable member is moved by fluid flowing through the pipe, said movable member automatically resuming its position across the pipe on failure of the flow of fluid through the pipe, means for transmitting the movement of said movable member to the exterior of the pipe, and means outside the pipe actuated by said movement for operating indicating or safety devices upon the failure or commencement of the flow of fluid through the pipe.

In safety apparatus actuated on the failure or commencement of the flow of a fluid through a pipe, the combination of a pipe, a flap valve extending transversely thereacross a spindle on which said flap valve is fixed, said spindle extending to the exterior of said pipe, a weighted lever on said spindle outside the pipe, a lever on said spindle outside the pipe, a block of insulating material on said lever, and a switch in the circuit of an indicating or safety device actuated by said block upon rotation of the spindle of the flap valve.

In a safety apparatus actuated on the failure or commencment of the flow of a fluid through a pipe, the combination of a pipe, a disc valve in said pipe, a spindle extending to the exterior of said pipe, a connection between said disc valve and said spindle adapted to rotate said spindle when the disc valve is moved lengthwise of said pipe, a weighted lever on said spindle outside the pipe, a lever on said spindle outside the pipe, a block of insulating material on said lever, and a switch in the circuit of an indicating or safety device actuated by said block upon rotation of said spindle by the movement of the disc valve.

IMPORTANCE OF SANITARY PLUMBING

Continued from page 14

to enlarge and approve it. Certainly the object is a most deserving and meritorious one, but are we not, to say the least, a little neglectful? It is all very well to try and cure disease, but we should be even more anxious to prevent sickness.

You will perhaps think I am exaggerating because the most of you have not the opportunity of visiting the small homes in their most intimate and private parts, like we plumbers, where we see toilet rooms and conveniences in the most disgusting condition. And I must say here that it is not the tenant of those small houses who is to blame, but the landlord who neglects to put their homes into a condition fit for human beings to live in, as they are not obliged to do so by any competent authority.

How can you expect the people who live in those hovels to fight disease and infection when they have to keep everything closed tight in order to get a little heat, since the landlord does not provide any more for the heating of the places than he does for the sanitation and health conditions. When you realize that there is no ventilation whatever in the toilet rooms you can imagine what kind of air those people have to breathe.

Danger Even in Fine Homes

But the harm does not exist only in the lowly homes, it exists perhaps even in the homes of some of those who are listening to me just now, and who live in sun-flooded and very comfortable homes, and who have finely equipped toilet rooms. I say perhaps, not that I have any doubts, as I am perfectly convinced that in the houses of some of you there are escapes of vitiated poisonous gas through fissures in your plumbing, but you do not notice it. It is not necessary to have an escape of water to have an escape of gas, since the joints of the sewer pipes are constructed in such a manner that they will allow water and other matter to run over them even if they are not perfectly air tight. You can be certain that the pipes are tight only when they have been tested by an expert with the necessary means—smoke, water or special odorous matters.

You may have the most modern and expensive plumbing fixtures, but if they are not set in according to sanitary science and rules you cannot have sanitary plumbing and you will, unnoticed to yourself, breathe most dangerous gases.

Every year Quebec publishes a voluminous report of the health department. Everything except plumbing is mentioned in it, and yet that is considered a most important subject matter in all other cities. It is due to ignorance or neglect? I leave it to you to answer that question.

I mentioned that we should place the sanitary plumbers among the men of profession, and this is why. In all the large cities of the United States and even in the Province of Ontario, the master plumbers call themselves now "Sanitary Engineers." Like other professionals, in order to be allowed to use the title and practice their "art" they must pass examinations that are so severe, that in many cities only about 40 per cent. succeed in passing them, and are entitled to practice after their first attempt. Others have to go through a second and some through a third examination before they are admitted to the "profession."

Should Pass Severe Exams

Not only the master plumbers, but even the workers must go through severe examinations before they can obtain employment. That shows you why we may classify those men among the "professionals," since they require so much theory and practice before they are allowed to practice in their city. I believe it is high time that we should go ahead.

The customs and habits of a city like Quebec are reflected in our nearby villages and towns. Our sanitary laws, our municipal code, our building laws; our police and fire regulations are all under surveillance by our rural village folks. We must remember that we are their school or alma mater on such public community interests, we are their models to follow. Is this not the best of reasons why we should even overstep the mark in our efforts to keep our standard of civic ethics as high as possible?

Fair Demand for Pipe, Valves, Fittings

Skelp, Basic Material in Pipe, Has Been Very Scarce—Plumbing and Heating Trade Depends on Gradual Reduction in Building Costs.

DEALING with general conditions in the plumbing and heating trades, and particularly as regards pipes, valves, fittings, etc., Mr. E. C. Townsend, manager Crane, Ltd., Montreal, made the following statement to Sanitary Engineer:

"With regard to delivery of such materials as pipe. This important commodity has been very scarce, the peak of this being severe in early and mid-summer. The shortage has not yet been made up and supplies will be available only gradually. The basic material for making pipe—skelp—has been a scarce commodity. Coal supply in the States, from which the skelp is obtained, is, and has been short of the requirements. Just at present the coal situation in the States is said to be quite serious.

"Another factor is that of rolling stock to move the raw and finished product. There was a time when it was next to impossible to obtain cars. Now it is somewhat different, but cars are scarce yet and may be for some time. There is enough improvement to prove encouraging to the trade.

"The demand for pipe all through the present year has been decidedly active. This indicates that, while apparently there was little building in progress, the total was nevertheless considerable. Quite a number of institutional buildings were erected, while work was also done in remodeling industrial plants, etc. This has meant that the call for valves and fittings, etc., has been considerable, though not so active as when building conditions are more nearly normal.

A Busy Time Ahead

"The future depends largely upon the extent to which reductions are made in various materials. From the standpoint of the plumbing and heating trades nearly everything depends upon the gradual reduction in building material prices. The matter is simple. For instance, a householder or even a financier engaging to erect a house or a business block must look at the matter from a forward standpoint. That is to say, if he builds to-day what will be the value of his plant a year from to-day? Will it be worth as much, allowing for the usual depreciation, as it would under normal conditions? The builder feels to-day, generally-speaking, that it will not, and that is why so much work is being deferred. In the case of one building, erected in the Western States, at high costs for material and labor, the hotel proprietor will have to get an average of $12 per day for his rooms. That means not to-day only, but for an indefinite period, if he is to provide for prinpal and interest charges. Who will pay $12 a day for this accommodation a year hence, two, three or five years? Even though some are charging more than this to-day, they will gradually have to accept less.

"Several instances have come to hand where architects are figuring on large work. Apartments of the better type will be favorites and will run into millions. This work would go ahead right now could the promoters or owners see a return on their money, indefinitely. The same applies to houses, and the tonnage of pipe, fittings and fixtures required to outfit these is, or will be greater in the aggregate than that used in the industrial plants that will be erected. It is on the development of the house-building program that better business will depend. And, allowing for a natural increase in the population and a ten per cent. need annually in housing, multiplied by the non-building period covered by the war, there is every reason, once sane levels are reached, to anticipate a tide of building activity that will probably eclipse anything yet recorded."

Sanitary Housing Will Help Solve Reconstruction Problems

LONDON, Ont.—That there is a tremendous and vital work to be done in Canada, and that it is the duty of every man in the sanitary and heating trade to do his share in accomplishing it, was pointed out by John W. Bruce, general organizer of the plumbers and steam fitters of Canada, in an address before the members of the Labor Forum here.

Without better and more sanitary homes for the working people, he declared, Canada can never hope to solve the great problem of reconstruction. There must be better housing accommodation for the thousands of workers and involved in the building of these homes was the problem of general improvements and especially the installation of sanitary plumbing.

Duty of the State

The governments of most of the enlightened countries to-day, he said, have come to a realization that one of their most important duties is to care for the general health of the people. The fact that no less than 36 per cent. of those examined for war service in the United Kingdom were found unfit, and that they were unfit owing to conditions that had developed from wrong living and housing, was startling but true. The same condition is more or less prevalent everywhere and is sapping the strength and vitality of hundreds of thousands of industrial workers. If the children of these people, upon whom Canada's future depends to a great extent, are to be better men and women it must be brought about by improved living conditions.

"Before reconstruction of the race can progress very far," said Mr. Bruce, "we must realize that a home is more than four walls. Our government has realized to a certain extent that better homes are essential and two years ago set aside $25,000,000 so that help in this direction could be given to the workers."

Mr. Bruce, however, attacked the plan on the ground that it had been surrounded, he said, by so much red tape and so many entanglements that many workers would rather borrow money at high rates of interest than go through all the formalities required to obtain funds from the government. It was absolutely deplorable, he said, that large cities like Montreal and many other large commercial centres do not realize the importance of alleviating existing conditions.

Proper Sanitation

Above all things, said Mr. Bruce, proper sanitation is vital. People who are crowded together in ill-ventilated, badly-lighted rooms and in homes where sanitary conveniences are unknown simply cannot maintain health. Well lighted, roomy houses with proper sanitary conveniences would reduce Canada's death rate and disease generally to a minimum. It was remarkable, he said, but even many architects failed to realize the importance of proper plumbing. There was often, he said, a tendency to sacrifice necessities for cheapness and this was a ruinous policy in the long run. Workingmen, he said, if they wished to do a real work in helping reconstruction along should see to it that faulty plumbing in their homes is eliminated and that this and other undesirable living conditions are overcome by legislation if it is necessary.

TORONTO SEWERS CONGESTED

Toronto.—Following a report from Works Commissioner Harris that the city sewers in many districts were charged to capacity, thereby rendering any additional connections dangerous, the Works Committee decided by unanimous vote not to provide further sewer accommodation and drainage for York Township.

Building Totals Higher in October

High Costs of Construction Still Have Restraining Effect However—October Building Valued at $8,828,193.

A casual survey of the building figures for the cities of Canada for the months of September and October would indicate that there had been a slight revival of activity during the more recent month notwithstanding the fact that there has been little or no relaxation in the depressing influences that have curtailed operations for some months past. The total for October was $8,828,193, a substantial increase over the total of $8,299,483 for the previous month. October's figures are swelled by the $2,000,000 addition to the King Edward Hotel of Toronto. This project was undertaken some months ago, and work has been proceeding since the past summer, although the permit is only included in last month's figures. For this reason, unless carefully analyzed, the figures would not indicate the true volume of building undertaken, and it is quite apparent that there has been a rather extensive decline in operations in comparison with earlier months of the year.

The value of building for the eastern cities reached a total of $7,061,845, compared with $8,149,203 for October in 1919. In the west the building undertaken during the month was placed at $1,766,348, against $1,249,730 last year. A minority of the cities report declines from the total for the corresponding period of 1919. Totals for the year stand at $93,959,459, which is considerably in excess of the returns for the first ten months of 1919, at $66,475,554.

The city of Halifax reports the most serious decline from the figures of last year, the latest total being $339,596, against $1,445,935. The total for Montreal is $725,526, against $1,519,992. Fort William reports an increase of $490,925; Ottawa, $428,179, and Toronto, $353,449. In the west, Brandon's figures reached $275,975, against $6,304; Winnipeg, $330,150, against $373,250; Calgary, $418,000, compared with $179,200, and Vancouver $258,833, against $164,080 last year.

The following are among the more important permits issued: Moncton, theatre, $20,000; bank building $80,000; Sydney, bank building, $85,000; Montreal, garage, $60,000; power house, $75,000; church, $25,000, Brantford, bank building, $30,000; Hamilton, factory building for Steel Company of Canada, $150,000; London, dwellings for Ruggles Motor Truck Co., $107,000; Peterborough, school, $208,671; Toronto, addition to King Edward Hotel, $2,000,000; Woodstock, housing commission, eight dwellings, $26,000; Brandon, asylum buildings, $266,000; Winnipeg, office building, $85,000; school, $50,000; Calgary, theatre, $300,000; Moose Jaw, C. P. R. station, $750,000; addition to Robin Hood Mills, $175,000; skating rink, $50,000; Prince Albert, extensions to pump house at waterworks, $65,750; Saskatoon, addition to C. N. R. express office, $19,000; Vancouver, school, $50,000; store, $25,000; Victoria, school, $16,500.

BUILDING PERMITS ISSUED IN OCTOBER

Eastern Cities.

Maritimes—	Oct., 1920	Oct., 1919	Change	10 mos. 1920	10 mos. 1919	Change
Halifax	$ 339,596	$ 1,445,935—	$1,106,339	$3,294,529	$ 4,656,258—	$ 1,361,729
Moncton	166,573	43,125+	123,448	1,242,923	2,013,646—	770,723
Sydney	161,040	72,768+	88,272	823,402	650,313+	173,089
St. John	59,350	84,540—	25,190	814,300	280,040+	534,260
Quebec—						
Montreal	$ 725,526	$ 1,519,992—	$ 794,466	$13,072,645	$ 8,484,636+	$ 4,588,009
Quebec	112,335	518,747—	406,412	2,100,980	1,871,691+	229,289
Sherbrooke	23,600	71,500—	47,900	2,962,408	817,350+	2,145,058
Westmount	44,265	190,265—	146,000	1,047,710	809,641+	238,069
Ontario—						
Brantford	$ 68,775	$ 43,880+	$ 24,895	$ 771,013	$ 900,310—	$ 129,297
Ft. William	505,400	14,475+	490,925	1,009,885	580,580+	429,305
Galt	4,500	27,000—	22,500	291,760	330,101—	38,341
Guelph	28,870	83,642—	54,772	439,368	578,819—	139,451
Hamilton	325,400	251,485+	73,915	3,985,895	4,371,672—	385,777
Kingston	18,920	31,085—	12,165	514,161	501,002+	13,159
London	267,305	178,145+	89,160	1,789,820	1,914,010—	124,190
Ottawa	710,649	282,470+	428,179	3,139,572	2,844,217+	295,355
Peterborough	211,966	99,390+	112,576	431,216	188,185+	243,031
Port Arthur	10,910	33,465—	22,555	206,495	1,696,163—	1,489,668
St. Catharines	40,925	112,236—	71,311	767,385	788,476—	21,091
St. Thomas	13,755	20,425—	6,670	252,146	214,665+	37,481
Stratford	34,093	7,636+	26,457	433,191	266,591+	166,600
Toronto	2,844,372	2,490,923+	353,449	22,850,712	15,243,766+	7,606,946
Welland	12,565	50,050—	37,485	285,550	332,571—	47,021
Woodstock	29,305	16,824+	12,481	269,247	108,107+	161,140
York Tp.	301,850	459,200—	157,350	4,022,600	3,678,425+	344,175
Total 25 E. Cities.	$ 7,061,845	$ 8,149,203—	$1,087,358	$66,818,913	$54,121,235+	$12,697,678

Western Cities.

Manitoba—						
Brandon	$ 275,975	$ 6,304+	$ 269,671	$ 397,725	$ 84,381+	$ 313,344
St. Boniface	12,425	83,920—	71,495	434,540	360,435+	74,105
Winnipeg	330,150	373,250—	43,100	8,017,900	2,489,150+	5,528,750
Alberta—						
Calgary	$ 418,000	$ 179,200+	$ 238,800	$ 2,532,200	$ 2,121,000+	$ 411,200
Edmonton	72,680	80,541—	7,861	3,166,955	838,541+	2,328,414
Lethbridge	.....	2,400—	2,400	226,975	149,220+	77,755
Saskatchewan—						
Moose Jaw	$ 99,100	$ 69,700+	$ 29,400	$ 1,493,260	$ 533,795+	$ 959,465
Prince Albert	70,695	20,775+	49,920	465,325	243,876+	221,449
Regina	68,050	151,250—	83,200	2,448,770	1,513,270+	935,500
Saskatoon	53,795	41,270+	12,525	1,084,435	1,354,590—	270,155
Weyburn	200	2,500—	2,300	2,376,416	6,570+	2,369,846
Yorkton	54,675	21,875+	32,800	399,570	355,875+	43,695
British Columbia—						
New Westminster	$ 15,400	$ 16,400—	$ 1,000	$ 266,415	$ 146,582+	$ 119,833
Vancouver	258,833	164,080+	94,753	3,240,893	1,765,428+	1,475,465
Victoria	36,370	36,265+	105	589,167	391,606+	197,561
Total 15 W. Cities.	$ 1,766,348	$ 1,249,730+	$ 516,618	$27,140,546	$12,354,319+	$14,786,227
Gr. Total 40 Cities	$ 8,828,193	$ 9,398,933—	$ 570,740	$93,959,459	$66,475,554+	$27,483,905

BRISK BUILDING IN MONCTON, N.B.

Moncton, N.B.—Building has been very brisk here this season and several of the larger ones have reached a stage where finishing can be proceeded with during the winter. Among these are a new opera house being built by Ambrose Wheeler for the Eastern Amusements Co.; a moving picture house for L. H. Higgins—both of these are of concrete blocks; the French Academy, reinforced concrete brick faced, the upper floors of the Hotel Brunswick which were burned during the summer and the remodeled upper floors of the Victoria School. The contract for plumbing and heating the Academy is held by Edgar T. LeBlanc of this city and is one of the largest handled here in a number of years. The plumbing and electric work at the Hotel is being done by the Thos. Johnson Co., also of Moncton.

Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

PRICES in the majority of plumbers' lines and supplies are holding unchanged, but the tendencies are for lower prices and the question is how long will changes be delayed.

Primary markets are lower, and lead, copper and tin have all been on the decline. Pig iron has dropped in price, but is still above last year's quotations at the foundry.

Pipe prices are easier in the States, but no changes in quotations here have been made up to the present. Supplies of pipe are improved, and the same can be said of fittings.

Sheets promise to be lower and some reductions have been made on black sheets and plates. An easier tone is manifest on tinned plates, and shipments have been received of Canada plates after long waiting.

Business is quieter, but there is considerable amount of finishing up work in hand for wares, pipe installation and heating and radiation.

The shortages which have been felt in many lines are decreasing, though improvements may be slow. The opinion is expressed in many quarters that the worst is over with regard to supplies, and next spring should see goods available in better quantities.

QUEBEC MARKETS

MONTREAL, Nov. 29.—Tendencies are decidedly on the soft side on plumbing goods, quite a number of reductions being operative here. On the other hand there are a number of staple products on which there has been no change and on which reductions are not anticipated for at least some weeks.

Corrugated iron is lower, and this line is quiet. Brass and copper sheets and tubing as well as rods are all lower in price. Ingot metals are softer and the list shows reductions. The sheet market promises to be a declining one. Lead is lower and this will mean early revisions, perhaps, on manufactured products, wire solder already being lower. Cotton waste is due for a decline. Pipe prices have declined in the States 7½%, and there is expectancy here, naturally, that lower prices will come. Malleable fittings are selling for less. Tinned iron and Canada plates will be available for next year in increased quantities. Bar iron is selling as low at $4.95 per 100 lbs. Radiators are selling, and the undertone on these is quite strong, as it also is on boilers.

Tinned Iron Will Come Next Spring

Montreal.

TINNED IRON.—A manufacturer stated this week to Sanitary Engineer that there will be plenty of heavy tinned iron for the use of the trade next spring. This means that heavy vat work, milk cans and cheese factory supplies can be made as before. This will be welcome news to many. It is probable that, while low levels can hardly be looked for until the season is well along, prices will be lower than recent quotations.

Sheet Brass and Copper Lower

Montreal.

COPPER SHEETS.—There has been considerable change in the price basis for copper sheets and quotations are down six cents a pound. Thus, soft copper sheets, plain, are quoted at 38 cents, plain tinned at 42 cents, polished and tinned 46 cents, and tubing 44 cents. Brass sheets are also less, four cents being clipped from former quotations, 24 gauge and heavier being priced here at 30 cents. There is also a declining market on seamless tubing, this being sold at 35 cents. Rods are based lower at 25 cents a pound.

Canada Plates Will Be More Plentiful

Montreal.

CANADA PLATE.—One manufacturer claims that he is cutting up Canada plates as asked for, but that they have no stock of regular sizes on hand. Another importer and manufacturer advised Sanitary Engineer this week that there would be no shortage of Canada plates from now on, although the present demand is very limited. Prices are firm.

Bound to Decline; Cotton Waste Easy

Montreal.

COTTON WASTE.—While there has been no change in the basis on cotton waste, there is every reason to anticipate a decline in the near future. Jobbers claim to have had a considerable demand for the product, and doubtless this is one reason for the maintenance of the price basis. In view of the fact that raw material has declined so decidedly, it was expected that waste prices would be lower before now. There is every likelihood of lower quotations being available within the next few weeks and perhaps by the first of December.

WASTE	
Cream, Polishing	0 22½
WHITE	
XXX	0 21½
XX	0 19½
X	0 18½
XXX	0 23
XX, grad.	0 21½
XLCR	0 20
X Empire	0 18½
E Press	0 16½
X Special	0 15½
XC	0 17½
COLORED	
No. 1	0 15
No. 7	0 14
No. 1A	0 13
No. 1B	0 12
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0 10

Above lines subject to trade discount for quantity.

As Time Passes Sheets Will Lower

Montreal.

SHEETS AND PLATES.—There has been very little demand for either black or galvanized sheets of late, and jobbers find that buyers will only purchase in limited quantities, expecting the prices to be lower from week to week.

On the other hand, importers state that lower prices would not bring them any increased business and this is one reason why there has been little change quotably although with considerable competition obtaining in this market, the situation from the price standpoint is nominal. Gradual reductions may be looked for.

BLACK SHEETS—		
10 gauge		9 25
12 gauge		9 30
14 gauge		9 35
16 gauge		9 45
18-20 gauge		9 90
22-24 gauge		9 95
26 gauge		10 00
28 gauge		10 10
GALVANIZED SHEETS—		
U.S. Standard—		
10¾ gauge	13 00	13 50
28 gauge	12 75	13 25
26 gauge	12 50	13 00
22 to 24 gauge	12 40	12 85
20 gauge	12 25	12 65
18 gauge	12 25	12 65
16 gauge	12 05	12 45
14 gauge		11 35
12 gauge		11 20
English Standard—		
28 gauge	13 00	13 50
26 gauge	12 75	13 25
24 gauge	12 15	12 65
22 gauge	11 80	12 30
18 and 20 gauge	11 35	11 85

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Prices Tumbling on Waste Materials

Montreal.

OLD MATERIAL.—A decidedly quiet condition obtains in the old material market and manufacturers will not buy at all. This means that the dealers would welcome business even at lower prices than those contained in the following list, and these have been marked down during the week, brass, copper, lead and various scrap iron being reduced considerably. It is doubtful whether any active buying will be manifest until after the first of the year, and it may be many weeks before manufacturers or large factors are in the market.

Dealer's Buying Prices

Automobile tires		0 01
Yellow brass	0 07	0 08
Red brass		0 12½
Light brass		0 05½
Scrap zinc		0 05¼
Lead, heavy	0 04½	0 05
Lead, tea		0 03
Lignt copper		0 09
Heavy copper		0 11
Wrought iron, No. 1, per gr. ton	15 00	16 00
Malleable scrap (ton)		17 00
Pipe scrap (ton)		12 00
Stove plate, per ton	24 00	25 00
Heavy melting steel		15 00
No. 2 busheling	10 00	12 00
Boiler plate		16 00

Softer Undertone For Lead Products

Montreal.

LEAD PRODUCTS.—A decline has been registered in the price of wire solder and this is due to the declining market on pig lead. No recession has been made from the recent prices quoted on lead pipe and waste, lead wool, lead sheet, etc. Neither has there been any decline on bar solders. The outlook, however, is for a softer market all around in view of the very low levels which have been reached on pig lead. Further reductions on lead products may be looked for. There is a fair amount of business from day to day but this is of small consequence, orders being frequent rather than heavy.

Lead pipe, per 100 lbs.	16 00
Lead waste, per 100 lbs.	17 00
Note.—Lead pipe is subject to a discount of	10%
Lead traps and bends	List plus 15%
Lead wool, lb.	0 14
Lead sheets, 2½ lbs.	0 12
Lead sheets, 3 to 3½ lbs. sq. ft., lb.	0 11½
Do., 4 to 8 lbs. sq. ft.	0 10½
Cut sheets ¼c lb. extra and cut sheets to size. ¾c lb. extra.	
Solder, guaranteed, lb.	0 31½
Solder, strictly, lb.	0 29½
Solder, commercial, lb.	0 26½
Solder, wiping, lb.	0 26¼
Solder wire (8 gauge)—	
40-60	0 32
45-55	0 34½
50-50	0 36
Zinc sheets, casks	0 16½
Do., broken lots	0 17

Slightly Easier, Bar Iron Lower

Montreal.

IRON AND STEEL.—The only change noticeable in the price basis on the iron list this week is that of a reduction on the part of one or two jobbers for common bar iron which is selling as low as $4.95 per cwt. None of the steel bars have been affected. The mills have been rolling steadily for many weeks now, and the demand, it is expected, will be overtaken before a great while. Meanwhile there is a shortage still of some sizes.

IRON AND STEEL.

	Per 100 lbs.
Common bar iron	4 95
Refined iron	6 15
Mild steel	5 30
Band steel	5 80
Iron finish machinery steel	5 35
Sleigh shoe steel	5 30
Tire steel	5 50
Toe calk steel	6 20
Spring steel	6 00
Harrow tooth steel	5 45
Single reeled machinery steel	6 80
Norway iron	15 00
Mining tool steel, per lb.	0 24½

NOTE—3-16" and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

Near Future Will Bring Lower Prices

Montreal.

WROUGHT IRON PIPE.—There is no change in the situation, quotably. One large importer states that of galvanized pipe in 3-8, 1-2, and 3-4 in. and 1 in. diameter, there is some scarcity. As far as black pipe is concerned the same difficulty does not exist. It is expected that within the next few weeks manufacturers will have been able to overtake the shortage and that stocks will be in much better shape. At the same time manufacturers, jobbers and retailers are possessing themselves of as limited stocks as possible, in view of the outlook, which is expected to be more favorable from a price standpoint. Prices from U.S. mills are already about 7 1-2 per cent. less than they were a week or two ago.

LIST NO. 46
Standard Buttweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.05	107.37	.....	.....

Already Lower Are Some Pipe Fittings

Montreal.

PIPE FITINGS.—The demand for pipe fittings is still quite active. This means that considerable jobbing is being finished up. Cast iron fittings are quite plentiful excepting of reducing sizes, the cause of these being scarce is the delay in getting machinery forward. Malleables are improving in the matter of supply slowly, although there is some difficulty in maintaining full stocks. Prices are somewhat more favorable on malleable fittings, class A selling at 62 cents per lb. for black and 78 cents for galvanized; class B 26 1-2 cents for black and 37 1-2 cents for galvanized; class C 17 1-2 cents for black, 26 1-2 cents for galvanized.

PIPE FITTINGS

Cast iron fittings	Plus 7½%
Plugs	Less 18%
Bushings	Less 18%
Unions, black	35%
Do., galv.	40%
Dart unions, ¼-in. to 2-in.	Plus 35% and 10%
Do., 2½-in. and larger	8%
Nipples, blk., up to 4-in.,	50%
Do., gal., up to 4-in.	40%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4 in. and under	20%
Couplings, 4½" and larger	Net list

MALLEABLE FITTINGS

Class A	0 62	0 78
Class B	0 26½	0 37½
Class C	0 17½	0 26½

No Increases in Valves or Bibbs

Montreal.

VALVES.—The demand for compression work, bibbs, cocks, valves, etc., is rather limited at the present time, although there has been an active season for these until now. The discounts are unchanged, but with the fall in basic materials, reductions should be manifest in a few weeks.

Compression work, standard, 3" and smaller	less 15%
Do., 3½" and larger	plus 25%
Add 50% to the above list.	
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Prices Are Steady; Soil Pipe Inactive

Montreal.

SOIL PIPE.—There is a limited demand for soil pipe at the present time and discounts are unchanged, the me-

dium and extra heavy being subject to list plus 5 per cent, while fittings remain at net list for 4-in., 2-in. to 6-in., 20 per cent, while 8-in. pipe and fittings are list plus 20 per cent.

Soil Pipe (medium and extra heavy), net.
Do., 2, 3, 5, and 6-in., add 5% to list.
Do., 8 inch, add 20% to list.
Fittings, 4 in., net list.
Do., 2 to 6 in., 20%.
8 inch pipe and fittings, add 20% to the list.

Late Demand Good; Radiators Are Firm

Montreal.

RADIATORS.—Even though the season is late, manufacturers claim that the output of radiators is quite heavy. This indicates that buildings which were being constructed in the late fall are now being fitted with heating plants and this accounts for the considerable outgo of finished radiators. Prices and discounts remain steadily firm, and if the next few weeks can be passed without an increase, it is doubtful if any advance will be made after the turn of the year. Some manufacturers do not anticipate, however, that there will be any decline for some time.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

No Reduction Yet For Range Boilers

Montreal.

RANGE BOILERS.—The standard 30 gallon range boiler is still selling at $15.00 and the extra heavy at $18.00. While no change has been made in the quotable basis, it is probable that accumulations of raw materials in the way of heavy sheets will enable manufacturers to make some alterations in prices before a great while. In the meantime there is a fair demand and supplies are ample.

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Discounts Held on Eavestrough

Montreal.

EAVES TROUGH.—The demand for eaves trough is rather limited at the present time and the list is unchanged. 50 per cent. is added to list prices.

CONDUCTOR PIPE.—The basis on conductor pipe remains unchanged, list prices being subject to a plus of 50 per cent. with the season practically closed for outside work, there is naturally very little business offering.

PIPE (Conductor)

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

Add 50% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in	$6 90	15-in	$12 50
10-in	7 70	18-in	16 00
12-in	9 10		

Add 25% to the above list.
F.O.B. Montreal.

Limited Sale For Conductor Elbows

Montreal.

ELBOWS.—There is no change in the list on corrugated or crimped elbows, list prices prevailing which are subject to a plus of 75 per cent. The demand is limited.

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 75% to above list.

Siding Very Quiet; Corrugated Sheets

Montreal.

CORRUGATED SHEETS.—There is a very soft undertone on this market and already one or two lines have been marked down, 28 gauge selling on the basis of $11.25 per 100 sq. ft. and 26 gauge at $12.00. This is a flat reduction over previous prices of 75 cents per cwt. Other gauges remain unchanged, and there is very little of this business at the present time and conditions will likely be quiet for the balance of the season. The future outlook is for still lower levels.

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	11 25
No. 26 gauge	12 00
No. 24 gauge	18 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Closets Still Sell on Unchanged Basis

Montreal.

CLOSETS.—Despite the lateness of the season, jobbers report a very satisfactory volume of business. They are reducing stocks quietly and steadily, and this is the practice of the trade generally. None wish to be over-stocked with high-priced goods to excess when any readjustment comes, but as yet there is little to indicate immediate reductions.

Enamelled Ware Is Still Selling Here

Montreal.

ENEMELLED WARE.—Baths and lavatories are moving out in fair quantities. The trade is buying as carefully as possible, and although the season is late there is some demand. Jobbers look upon this favorably as it indicates more activity than they expected would obtain so near the holidays. Quotations are unchanged. If freight rates are automatically reduced to any extent the first of the year, as they likely will be, this may have the effect of easing the basis then.

Ingot List Is Weak; Reductions Made

Montreal.

INGOT METALS.—The market is still in an unsettled and uncertain state. Prices have been declining at primary points and the end does not seem to be in sight as yet.

TIN.—London markets are softer, with declines. This has been reflected in the local market and 46 cents per pound is being quoted here.

COPPER.—This is lower than at last writing and for "Electro" 19 1-4 cents per pound is being quoted, while casting is selling at 19 cents.

LEAD.—This is the weakest ingot in the list and has reached a price of 7¾c, one of the lowest local quotations for years.

SPELTER.—This is easing and the market undertone is weak, with local price 8 3-4 cents.

ANTIMONY.—At 8 1-4 cents per lb. a limited amount of business is being transacted.

ALUMINUM.—This is quiet and little change is manifest, supplies being sold at around 35 cents.

ONTARIO MARKETS

TORONTO, Nov. 29.—The tendencies are lower on many lines used by plumbers and steamfitters, though few price changes are noted since the last issue.

Metals are lower, but there is very little business doing in ingots. The pig lead market is weaker and reduced prices in products of lead may be expected, it is thought. Solders are lower. Sheet copper and brass sheets and tubing have been reduced and compression goods may be affected. Waste materials are showing but little trading and prices are only nominal. Enamelled ware is holding at recent changes. Pipe and pipe fittings are said to be improved in deliveries and a better tone is in evidence. Iron and steel supplies are making a better showing as are also sheets. Black sheets are quoted at lower prices, and deliveries have been made on Canada plate.

Firmness Shown on Asbestos Products

Toronto.

ASBESTOS PRODUCTS.—This season has seen a very strong demand for all kinds of asbestos products, and though the sale of roofings, shingles and sheathings has now fallen off to a certain extent there are still good calls for asbestos pipe coverings, boiler coverings and asbestos cements, etc. Prices are still ruling very firm and Sanitary Engineer is informed that very little change can take place while labor costs remain as high as they are at present.

Iron and Steel Improved Conditions

Toronto.

IRON AND STEEL.—There has been an improvement in supplies of bar iron and steel and conditions are easier. Jobbers state that the demand has dropped off considerably. Some lines show an easier tone, but there is no change in prices from the base of $5.50. The market is is an unsettled state and any changes would likely be in a downward direction. The reports from the States indicate that the demand for bar iron is particularly slack and though no changes have been made the trade are expecting to see a reduction. Quotations on basic valley pig have dropped to $37.50 and coke prices show considerable reduction. Jobbers' quotations are the following:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	$ 6 00
Common bar iron, 3-16 in. and lighter	6 00
Common bar iron, ¼-in. and heavier	5 50
Angle base	6 00
Horseshoe iron	6 00
Tire steel	5 95
Band steel	6 00
Spring steel	12 75
Mining drill steel	28 00
Sheet cast steel	....
Sleigh shoe steel	6 00
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	7 50

Canada Plate Some Deliveries Made

Toronto.

CANADA PLATE.—There has been some deliveries made this past week or so in Canada plate just as the trade had almost given up hope of seeing any more this season. One manufacturer informed Sanitary Engineer that they had had some on order fifteen months and had been obliged to cut up large sized black sheets to make into stove pipes. There should be an improvement in this line from now on.

Pipe Improving; Tendency Easier

Toronto.

PIPE. — Manufacturers report that they are getting better supplies of skelp, and that shipments are improving and in a short time now there should be a very noticeable difference in deliveries of pipe. Jobbers do not expect any change in prices at present though it is thought by some that the easier market in the States might be reflected here before very long.

Deliveries of pipe are improving, but there is still a difficulty reported in obtaining certain sizes, especially among the sizes the plumbing trade use the most.

No change of price is announced and list No. 46 is still in force.

LIST NO. 46
Standard Buttweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8 63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.05	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$ 38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2 66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4 39	4.39	5.21

Pipe Fittings More Plentiful

Toronto.

PIPE FITTINGS.—Malleable fittings are coming in more abundantly now, and jobbers' stocks are larger than they were, with shortages not so pronounced. The demand is falling off and if pipe makes a change it is thought that fittings will follow. Quotations are as under:

PIPE FITTINGS

Cast iron fittings	plus 10%
Plugs	7½%
Bushings	10%
Unions ¼" to 2"	30%
Do., ⅛ in., 2½ to 4 in.	25%
Dart-Unions, blk., ¼ in. to 2 in.	8%
Do., ⅛ in., 2½ to 4 in.	5%
Do., galvd., add to black	30%
Nipples, blk. and galvd., ⅛ to 4 in.	50%
Do., 4½ in. and larger	40%
Do., running thread	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Soil Pipe Quieter; Quotations Unchanged

Toronto.

SOIL PIPE AND FITTINGS.—Soil pipe and fittings have had an active demand it is stated, but a quieter time is now at hand. No reduction of prices is expected and the following quotations are still in effect.

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, add 10% to list.
4-inch, net list.
8 inch, add 20% to list.
FITTINGS—
2 to 6 inch fittings, 20% discount.

Wares Holding at Recent Change

Toronto.

ENAMELLED WARES.—There is said to be still quite a good amount of business being done in enamelled ware, but it is mostly in finishing contracts started some time ago. The trade are buying sparingly, and not any more than for their immediate needs, it is stated.

Prices are holding at the revisions made at the beginning of November, and it is not thought likely that there will be any other changes at present. Many think that prices have reached their peak on these goods and look for a gradual lowering from now on as primary markets decline, though it is remarked that there can not be very much reduction with labor costing what it does to-day. Labor counts for more in the cost of plumbing goods than do materials, it is stated.

List prices are as follows:

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide			$51 40
Bath tubs, 5½ ft.			57 10
All Steel Enamel Baths, 4, 4½ or 5 ft., net			$16 25
Do., do., 5½ ft., net			17 50
Lavatories			
17x10" Apron F139 or P4045			15 30
18x24" Apron F154 or P3845 or P3847			23 60
18x21" Apron F169 or P 4205			17 60
18x21" Roll Rim F197, F199 or P4655-6			15 40
17x19" Roll Rim, F241 or P4345			12 60
Sinks, Roll Rim, 16 x 24 in.			18 10
Do., 18 x 30 in.			23 00
Do., 20 x 30 in.			24 70
Sinks, Flat Rim—	1 only	2 only	3 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

All above list except lines marked net.
Discount 15% off these prices.

Closet Bowls Show No Change

Toronto.

CLOSETS.—A certain volume of business is being reported in these goods, though the bulk of it is not new business. No alteration of prices has taken place and following are current quotations:

Closet, standard outfit	$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, seat and cover	19 00
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Sheets and Plates; Some Lower Prices

Toronto.

SHEETS AND PLATES.—The deliveries of black sheets are improved and some gauges are easier than they were. There are some lower quotations on the part of some jobbers and prices are showing a variation. In galvanized

sheets, too, there is an improvement, but it is not making as much progress as are black sheets. Prices on galvanized sheets are but little changed, though the trade expect that a gradual reduction in quotations will occur as supplies improve.

American reports indicate that the leading independents are accepting business on the same basis as the Steel Corporation.

Prices have been lowered at the mills, but there is only a small number of enquiries at present prices. Producers do not think that any lowering of quotations at the present time would result in any more business.

Prices are as follows:

BLACK SHEETS

14 gauge	....	9 50
16 gauge	....	9 60
18-20 gauge	8 45	10 20
22-24 gauge	8 5	10 25
26 gauge	8 55	10 30
28 gauge	8 65	10 00
3-16 in. plate	6 50	7 00
¼-in. boiler plate	5 50	6 00

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier.	Apollo.
10¾ oz.	12 50	13 25
U.S. 28	12 70	12 85
U.S. 26	12 40	12 55
22 and 24	12 25	12 40
18 and 20	11 95	12 10
16	11 95	12 10
12 and 14	11 20	11 95

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

Easier Tone on Plumbers' Oakum

Toronto.

PLUMBERS' OAKUM.—There is a nominal demand for plumbers' oakum with prices unchanged at $9.50 per 100 lbs. Small quantities sell at 12 cents per pound. There is an easier tone evident in the oakum market and some grades are being quoted at lower prices.

It is possible that the plumbers' grade may be reduced.

Compression Goods Unchanged; Steady

Toronto.

COMPRESSION GOODS.—There has been no changes made in the quotations on valves or bibbs. With the declines in the cost of raw materials it is thought that a revision of prices may be expected before long, but the opinion is held that it will possibly not occur until the new year. The demand has fallen off for the larger sizes, but sales of standard goods in bibbs and regular lines of radiator valves are brisk at the present time. It is said that the trade is buying just sufficient for their immediate requirements.

Following are present quotations:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	list plus 20%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Radiator Sales Fair; Supplies Improved

Toronto.

RADIATORS.—The demand for radiators is stated to be very fair, and sales have been satisfactory in these lines.

Raw materials are easier to obtain than they were formerly and the danger of a shortage is thought to be past.

Quotations are unchanged and are as follows:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 2 3in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Disount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

Corrugated Sheets Hold; Conditions Better

Toronto.

CORRUGATED SHEETS—No change has taken place in the quotations on corrugated sheets. Although a better state of conditions regarding supplies of sheets is reported, there is still a shortage in the light gauges, and the opinion is that there will not be much change this season. The demand is lighter now and if better supplies become available it is hardly likely that dealers will stock up heavily now.

Should galvanized sheets follow the lead of the black, corrugated iron will possibly be revised, too.

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	12 00
No. 26 gauge	12 75
No. 24 gauge	13 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Furnace Supply Falls Behind Demand

Toronto.

FURNACES.—Some manufacturers of these lines report that they have not yet caught up with the demand, but shipments are better, and materials are showing improvement also.

No changes have been made in prices.

Stove Demand Holds; Shipments Improve

Toronto.

STOVES AND RANGES.—The demand continues good for both heaters and ranges, and though manufacturers are finding improvements in deliveries of raw materials the orders have not yet been caught up with in many cases.

Prices keep firm and no change is expected at the present.

Stove Pipes and Elbows A Better Showing

Toronto.

STOVE PIPES AND ELBOWS.—The sales of stove pipes and elbows are heavy at the present time and some deliveries of Canada plate having been recently made has helped out the trade in these goods.

Prices are unchanged and are quoted as below:

Stove Pipes—Made up, 6 in., common, $23.57 per 100 lengths; bright, $29.45; 7 in., $26.09; Bright, $31.22 per 100 lengths.

Stove Pipe lbows—6 in., Light, $3.15 doz.; heavy, $3.65; 7 in., light, $3.50; heavy, $4.09.

Conductor Pipe and Trough Unchanged

Toronto.

CONDUCTOR PIPE AND EAVE-TROUGHING.—No changes in discounts are made in quotations on conductor pipe or eavetroughing.

Sales have been very steady, but are becoming less now. Following are present quotations:

PIPE (Conductor)
Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 60

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.
8-in. $6 90	15-in.	$12 50
10-in. 7 70	18-in.	16 00
12-in. 9 10		

Add 25% to the above list.
F.O.B. Toronto, Oshawa, Ottawa.

Conductor Elbows Still Fifty Above

Toronto.

CONDUCTOR ELBOWS.—These are still quoted at 50 per cent. above list. Sales are smaller now and stocks are low. List is as follows:

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Boiler Tubes Unchanged; Stocks Are Limited

Toronto.

BOILER TUBES.—The demand for these has been of a more limited nature and though stocks are still low, jobbers state that they have not very much difficulty in filling requirements. There have been no changes made in prices

and it is expected that the following quotations will hold:

BOILER TUBES—	Per 100 feet Seamless	Lapweld
1 inch	$28 00	$.....
1¼ inch	32 00	.....
1½ inch	33 00	.....
1¾ inch	35 00	.....
2 inch	35 00	30 00
2¼ inch	38 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

No Changes in Cotton Waste

Toronto.

COTTON WASTE. — No further changes are reported in cotton waste prices, though there is a tendency to look for a lower revision of prices. It is pointed out by the trade that waste was not advanced in price to the same extent as other cotton goods and therefore is not due for the same declines.

Prices are the following:

WASTE		
Cream, Polishing	....	0 26
WHITE		
XXX	....	0 23
XX	....	0 21½
X	....	0 20
Japanese	....	0 17
XX, grad.	....	0 22½
XLCR	....	0 20
X Empire	....	0 18½
X Press	....	0 16½
XC	....	0 18½
COLORED		
No. 1	....	0 18
No. 7	....	0 16
No. 1A	....	0 14½
No. 1B	....	0 12½
Fancy	....	0 18
Lion	....	0 16
Standard	....	0 14
Popular	....	0 12
Keen	....	0 10

Above lines subject to trade discount for quantity.

Range Boilers Held Unchanged

Toronto.

RANGE BOILERS.—No change has taken place in quotations on range boilers and the sales of these lines are stated to be normal.

Following are quotations:

Range Boilers—	Standard	Ex.Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Lead Products Easier; Solder Is Lower

Toronto.

LEAD AND ZINC PRODUCTS.—A lower lead market is in evidence and New York reports $5.50 having been reached. This is within 50 cents of last year's lowest price, and present prices show a marked reduction from the high level of $9.50 of March, 1920.

The demand for lead products is smaller, though some state that they are doing quite as much business as they expect to do at this time of the year. There are some lower quotations made in solder and further declines in prices may result, it is thought, on account of primary markets falling.

Quotations are the following:

Lead pipe, list, per lb.	....	0 16
Lead waste pipe, list, per lb.	....	0 17
Do., over 8 in., list, per lb.	....	0 18
Lead pipe is subject to discount of 10%.		
Lead traps and bends		add 15%
Lead sheets, 4 to 6 lbs., sq. ft., in rolls, lb.	....	0 12¼
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.		
Solder, wire, lb.	....	0 37
Do., strictly, lb.	0 30	0 32
Do., commercial, lb.	0 28	0 29
Do., guaranteed, lb.	....	0 32
Do., wiping, lb.	0 27	0 28
Zinc sheets, per lb.	....	0 18
Calking lead	....	0 10¾

Stove Pipe Dampers Present Quotations

Toronto.

STOVE PIPE DAMPERS.—There has been a good call for these goods this season and the present quotations on the Champion make per dozen, in bulk, are as follows:

4 in., $1.55; 5 in., $1.60; 6 in., $1.80; 7 in., $2.40.

Extension Fire Backs; Latest Price

Toronto.

EXTENSION FIRE BACKS.—The present quotation on the Perfection make of extension fire back is $13.50 per dozen, and Schenck's is quoted at $12.00.

Present Prices on Cast Iron Sinks

Toronto.

CAST IRON SINKS.—The following are jobber's quotations on the ordinary pattern cast iron sink:

14 in. x 20 in., $2.20 each; 15 in. x 27 in., $3.40; 16 in. x 20 in., $2.70; 16 in. x 24 in., $2.75; 16 in. x 30 in., $3.50; 18 in. x 24 in., $3.40; 18 in. x 30, $3.75; 18 in. x 36 in., $5; 18 in. x 42 in., $5.50; 20 in. x 36 in., $5.25.

Waste Materials Lower; Market Quiet

Toronto.

WASTE MATERIALS.—The market has been very quiet on scrap materials and new business has almost ceased.

Prices are only nominal, mills and foundries are not purchasing and dealers hardly know what to quote.

Copper, with yellow metals, shows a lower tone, and lead scrap and zinc, while unchanged, are easier. Rubbers and auto tires are down in price.

Following are nominal quotations:

WASTE MATERIAL		
No. 2 busheling	....	13 00
Stove plate, per ton	28 00	29 00
Scrap pipe	0 09	0 10
Yellow brass	0 07½	0 08
Red brass	....	0 15¾
No. 1 machinery cast	37 00	38 00
Heavy melting steel	22 00	23 00
Heavy copper	0 12	0 12½
Light copper	0 10½	0 11
Scrap zinc	....	0 05½
Light brass	0 05	0 05½
R.Rd. wrought iron, No. 1, per gr. ton	24 00	25 00
Heavy lead pipe	0 05	0 06
Old rubbers, boots and shoes	....	0 06
Overseas lumbermen's rubber boots	0 04	0 04½
Bicycle tires	0 01	0 02
Automobile tires	0 01½	0 02
Tea lead	....	0 03

White Lead in Oil Reduced in Price

Toronto.

WHITE LEAD IN OIL.—A reduction of $2.25 per cwt. has been made in the price of white lead in oil and putty has declined 50 cents per 100 lbs. These changes have followed the decline in pig lead and linseed oil respectively. Red lead prices have not been changed at present.

Copper and Brass Have Lower Tone

Toronto.

COPPER AND BRASS.—A lower tone is in evidence in primary markets and copper is being quoted at 14 cents at refinery, according to New York reports. This low price is stated to be below producing costs, and a curtailment of production is announced.

Sheet copper, 16 oz. and heavier, is quoted at 40 cents and tubing at 42 cents.

Ingots Lower But Quiet and Dull

Toronto.

INGOT METALS.—The market in ingot metals has been dull again, with declines in quotations on tin, lead and spelter.

TIN.—While tin has declined since the last market report, it is reported to be steadier on London markets, and the declines have been offset somewhat by rise in exchange rates. U. S. buyers are holding off. Local quotations are 45 to 47 cents per pound.

COPPER.—A low level has been reached by copper, and it is being offered at 14 cents at refinery. These quotations are down to pre-war prices and are stated to be below production costs. There is little demand and quotations here are 19½ cents for casting copper.

LEAD.—Sales at $5.50 are reported to have been made in U. S. markets, but even at this figure, which is within 50 cents of last year's lowest price, and is $4 less than this year's highest, there is little business doing. Market here is very dull and price is 8¼ cents.

SPELTER. — The market here is weaker and quotations are lower at 9 cents.

ANTIMONY. — Very little enquiry and prices unchanged at 9 cents per pound to 13 cents per pound, according to grade.

ALUMINUM.—An easier tone is noted in this without any increase of interest shown. Quotations are unaltered at 37 to 39 cents.

Building Business
on a Firm Foundation

Your success depends upon giving your customers thorough and lasting satisfaction.

You can best do this with Brass Goods of the highest quality — the kind that MUELLER makes.

MUELLER
Lever Action Ball Cocks

are positive in action—practically noiseless in operation under any pressure — afford easy access to all working parts without removal from tank—and are tested at 200 pounds hydraulic pressure. Number A-1270 is shown here.

Detailed description and prices on request. Mail orders given prompt attention.

H. Mueller Mfg. Company, Ltd.
Sarnia, Ontario

Water, Plumbing and Gas Brass Goods and Tools

American Factory at Decatur, Ill., U. S. A.
Branches, New York and San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod; Brass and Copper Tubing; Forgings and Castings in Brass, Bronze and Aluminum; Die Castings in White Metal and Aluminum; also Screw Machined Products.

WINNIPEG MARKETS

WINNIPEG, Nov. 24.—Very few changes have been made during the past two weeks in the prices of plumbing and steam fitting supplies. Prices as a rule are holding firm with the exception of a few lines of brass goods, some of which are marked lower and some are higher. The lead market is still fluctuating a little, but no changes have been issued as yet. Pipe deliveries are a little better but pipe will be a scarce article for a few weeks yet. Fittings, both cast and malleable, are getting easier to obtain. Cotton waste is easing up a little but remains unchanged. Enamelled ware is not so brisk and is steady. There is a general feeling that prices are going to come down, but it will be very gradual. Business is not so brisk in these lines as it was, but that is characteristic of this season of the year.

Pipe Supply Fair; Price Tendency Lower

Winnipeg.

PIPE.—No change has been made in the prices of pipe during the past two weeks. Some sizes are still very scarce, but it is expected that soon conditions will be better in that regard. The lesser demand for pipe at this time of the year will help to boost supplies in readiness for the next season's demand.

Date Effective Sept. 29, 1920.

Size ins.	Winnipeg.	Calgary, Edmonton, Lethbridge & Medicine Hat Add to Winnipeg price.	Saskatoon Add to Winnipeg price.	Regina Add to Winnipeg price.	Brandon Add to Winnipeg price.
⅛ in. ..	$6 21	$0 30	$0 20	$0 17	$0 11
¼ in. ..	5 94	0 53	0 34	0 30	0 19
⅜ in. ..	6 12	0 70	0 45	0 40	0 26
½ in. ..	8 24	1 05	0 67	0 59	0 38
¾ in. ..	10 22	1 40	0 90	0 79	0 51
1 in. ..	15 08	2 08	1 34	1 17	0 75
1¼ in. ..	20 43	2 80	1 80	1 57	1 00
1½ in. ..	24 48	3 35	2 15	1 88	1 21
2 in. ..	32 94	4 50	2 88	2 52	1 62
2½ in. ..	53 33	7 18	4 60	4 02	2 68
3 in. ..	70 07	9 42	6 03	5 28	3 39
3½ in. ..	88 20	11 25	7 20	6 30	4 05
4 in. ..	104 40	12 33	8 53	7 46	4 80
4½ in. ..	124 20	15 61	10 04	8 75	5 62
5 in. ..	144 90	18 12	11 60	10 15	6 52
6 in. ..	188 10	23 45	15 00	13 14	8 44
7 in. ..	274 50	29 09	18 62	16 28	10 46
8L	288 90	31 25	20 00	17 50	11 25
9	397 80	42 20	26 96	23 59	15 16
10L in. ..	369 00	40 00	25 60	22 40	14 40
Galvanized Pipe					
Size ins.					
⅛ in. ..	$8 69	$0 30	$0 20	$0 17	$0 11
¼ in. ..	8 28	0 53	0 34	0 30	0 19
⅜ in. ..	8 46	0 70	0 45	0 40	0 26
½ in. ..	9 95	1 05	0 67	0 59	0 38
¾ in. ..	12 51	1 40	0 90	0 79	0 51
1 in. ..	18 50	2 08	1 34	1 17	0 75
1¼ in. ..	25 02	2 80	1 80	1 57	1 00
1½ in. ..	29 93	3 35	2 15	1 88	1 21
2 in. ..	40 28	4 50	2 88	2 52	1 62
2½ in. ..	65 39	7 18	4 60	4 02	2 68
3 in. ..	86 40	9 42	6 03	5 28	3 39
3½ in. ..	107 10	11 25	7 20	6 30	4 05
4 in. ..	126 90	12 33	8 53	7 46	4 80
4½ in. ..	152 10	15 61	10 04	8 75	5 62
5 in. ..	177 30	18 12	11 60	10 15	6 52
6 in. ..	229 50	23 45	15 00	13 14	8 44
7 in. ..	.....	29 09	18 62	16 28	10 46
8 in. ..	.....	31 25	20 00	17 50	11 25

Sheets and Plates Supply Improved a Little

Winnipeg.

SHEETS AND PLATES.—Although many have been looking for lower prices on sheets, it is not likely that a change of any extent will be made before the first of next year. The lighter gauges in both galvanized and black remain very scarce and as buyers are only buying in limited quantities fearing a possible reduction the present condition will remain the same for some time. The following prices are nominal:

Black Sheets—10 ga., $10.00; 12 ga., $10.00; 14 ga., $10.00; 16 ga., $10.35; 18 ga., $10.40; 20 ga., $10.40; 22 ga., $10.45; 24 ga., $10.45; 26 ga., $10.50; 28 ga., $10.65.

Galvanized Sheets—16 ga., $12.25; 18 ga., $12.50; 20 ga., $12.50; 22 ga., $12.65; 24 ga., $12.65; 26 ga., $12.80.

Soil Pipe Prices Remain Firm

Winnipeg.

SOIL PIPE AND FITTINGS.—There is no change looked for in the prices of cast iron soil pipe for some time as the stocks of pig iron are getting low. The price asked for pig iron to-day is much higher than the price paid for the present supply and if manufacturers have to buy further supplies of pig iron at present day prices, the tendency will be for higher prices.

SOIL PIPE—2 and 3 in. 15% adv.; 4 in. 5% adv.; 5 and 6 in., 15% adv.; 8 in., 25% adv.

S. P. FITTINGS—2 and 3 in., 15% off; 4, 5 and 6 in., 20% off; 8 in., 25% adv.

Compression Goods and Valve Prices Revised

Winnipeg.

COMPRESSION GOODS AND VALVES.—The prices on these lines have been revised this week, some are higher and some lower. The demand for larger sizes of valves has fallen off, but there is a steady demand for the smaller sizes in various lines. Following are some of the present quotations:

COMPRESSION BATH COCKS—25% off list.

JENKINS VALVES—(Standard pattern)—Gate, 5% off; check, 5% adv.; Globe, 5% adv.; Angle, 5% adv.; Globe and Angle over 9 in., 25% adv.

Big Drop in the Price of Linseed Oil

Winnipeg.

LINSEED OIL.—The price on raw and boiled linseed oil has been reduced 40 cents per gallon.. Supplies have been coming in freely and it is probably the advent of crowded stocks that causes the prices to drop. Following are the present prices:

Raw, $1.45 per gallon; boiled, $1.48 per gallon.

SMITH'S FALLS TO PUT IN FILTRATION PLANT AT ONCE

Brockville.—On the demand of Dr. J. W. S. McCullough, Chief Provincial Officer of Health, that Smith's Falls install a filtration plant immediately, the town has decided to proceed with the work. Dr. McCullough informed the town that the Board of Health would brook no delay.

REPAIR HEATING AND INSTALL NEW SANITARY EQUIPMENT

Hamilton.—On motion of Trustee T. F. McIllwraith the Board of Education decided to engage Witton & Walsh, architects, to prepare an estimate of the cost of adding four rooms to the West Ave. School, repairing the heating system, and installing new sanitary equipment.

BIG BUILDINGS TO BE ERECTED

Montreal.—In addition to the new 1,000-room Mount Royal Hotel to be erected in Montreal next year it is expected that the Canada Cement Company will erect a new office building facing Phillips Square, a location that should prove very central and easily accessible. The property has already been purchased, Sanitary Engineer is informed, and this means that a considerably elaborate building programme is likely in Montreal for the early spring. Such enterprises as these are encouraging to the plumber, and with the activity once begun there ought to be numerous other work put in hand at an early date.

CHLORINE TASTE IN CITY WATER TO BE REMEDIED

Edmonton, Alta.—City water which is reported to taste strongly of chlorine is to be purified without delay, according to instructions which the mayor has sent the waterworks department.

In his capacity of acting commissioner of utilities, the mayor has given authority for the department to systematically blow out all the dead ends of the waterworks system at as early a date as possible. In carrying out this work, the water staff is to co-operate with the power department.

Several complaints have been made lately as to the pronounced taste of chlorine in water for domestic use. It is claimed that this is owing to water gathering in ends of the system that are not active, and as a results it becomes stale and generates chlorine.

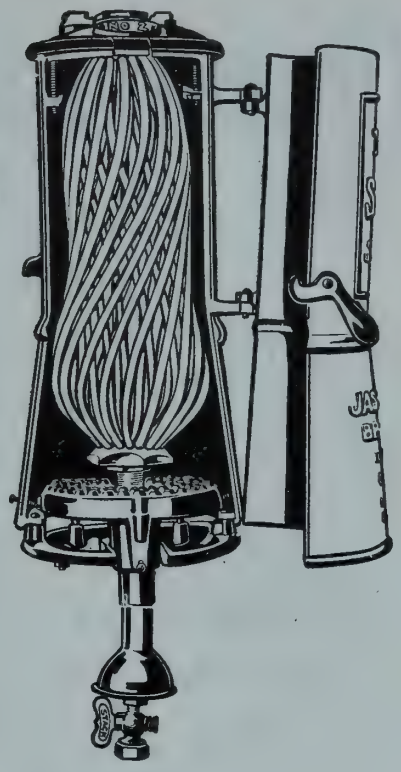
As the department has been working on the filtration plant and clear water basins for some time, the mayor feels that portions of the system that are faulty should be fully emptied so as to remedy the conditions complained of.

TRADE MARK J.M.T. REGISTERED A GUARANTEE OF QUALITY

This *Efficient*

Stack Heater

Heats Water in Sixty Seconds



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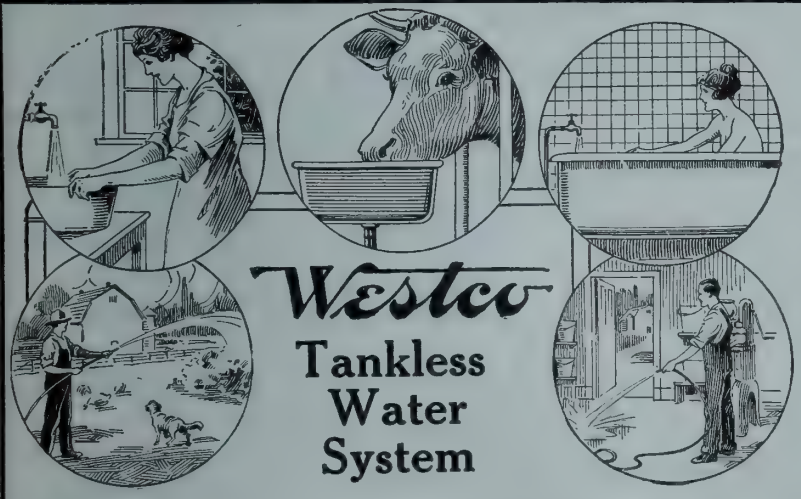


Westco Tankless Water System

Gives City Conveniences to Rural Homes

The Westco Tankless Water System gives to farm and suburban homes, which have electricity available, all the modern sanitary conveniences of the city. Running water for indoor toilet, bathroom, kitchen, barns, dairy, etc. These conveniences have been too long delayed in the rural districts.

The Westco fills this urgent need.

It has no storage tank. Just turn the tap and the pump starts, pumping the water *direct* from the source of supply to the faucet.

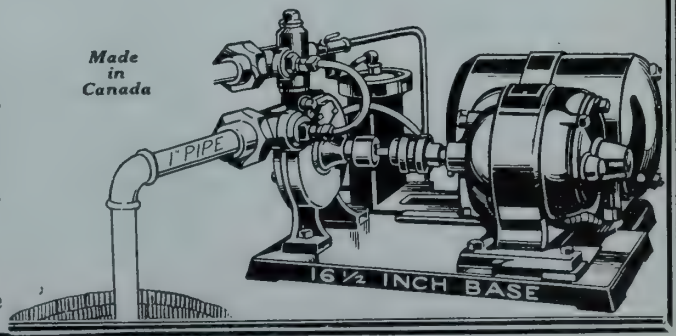
The Westco Tankless Water System is small and compact, weighing less than 100 lbs. It is 16½ inches long, 14½ inches wide, and 11 inches high. It will pump 300 to 500 gallons per hour. It has NO gears, NO and 11 inches high. It will pump 300 to 500 noiseless. ***It has only one moving part***—the impeller in the pump—and, therefore, does not get out of order.

There is a big demand throughout the country and dealers are finding it good business to handle The Westco Tankless Water System.

Write for full particulars.

WESTCO PUMPS, LIMITED

707 Yonge St., Toronto, Ont.



AIR CONDITIONING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR LINE SYSTEMS
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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
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Steel & Radiation, Ltd., Toronto.
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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

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United Brassfounders & Engineers Ltd., Manchester, Eng.
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Empire Mfg. Co., Ltd., London and Toronto.
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CLAMPS "C"
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United Brassfounders & Engineers Ltd., Manchester, Eng.

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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
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Warden King, Ltd., Montreal.

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Lord & Burnham Co., Ltd., Toronto.
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HOIST HOOKS
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MONKEY WRENCHES
Trimont Mfg. Co., Roxbury, Mass.

PACKING
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Wolverine Ltd., Toronto, Ont.

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C. A. Dunham Co., Ltd., Toronto, Ont.

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Beaton & Corbin Mfg. Co., Southington, Conn.

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James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.

PIPE CLEANSER
Chamberlain Desolvo Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Trimont Mfg. Co., Roxbury, Mass.
Wolverine Ltd., Toronto, Ont.

PIPE JOINT COMPOUNDS
Wolverine Ltd., Toronto, Ont.
James Morrison Brass Mfg. Co., Toronto.
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PIPE, SOIL, AND FITTINGS
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Empire Mfg. Co., Ltd., London and Toronto.
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H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Toronto Hardware Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

This is a "Q" Foot Valve

And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

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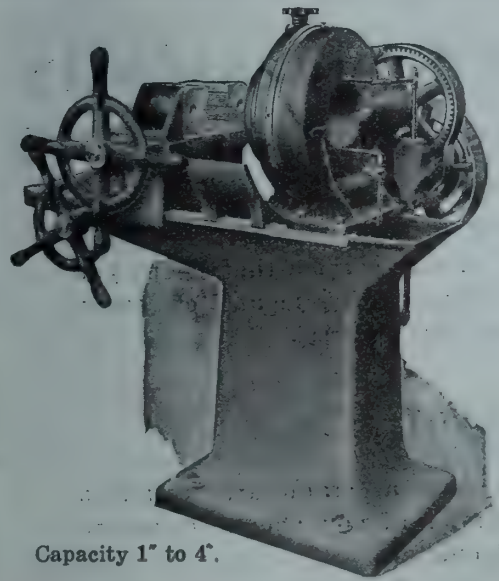

Capacity 1" to 4".

The Hall Simplex Improved No. 4 Pipe Machine

Easily operated by unskilled help. An ideal machine for the plumber, the steamfitter or the jobber. Will thread pipe as short as 4½ inches. Let us mail you full information regarding this money saver together with catalog covering our complete line including:

Pipe threading machines ...	⅛ to 18"
Nipple machines	⅛ to 4"
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Delivery from stock.

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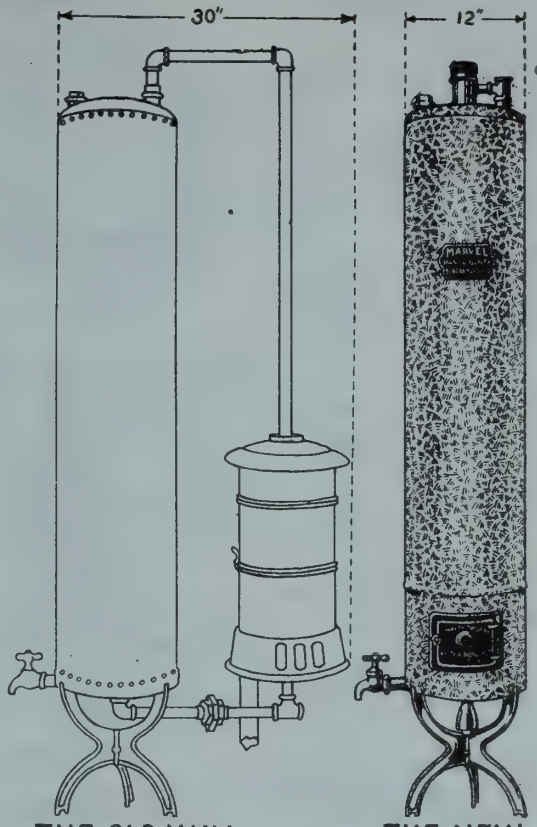

THE old style side arm combination was as inefficient as candle light. It was awkward, a gas-eater, slow, heated more air than water, and, like the candle, it has given place to the new and better way.

GAS WATER HEATER
Marvel
Gas Heater and Boiler Combined

is delivered on the job completely assembled, and, with the addition of a single gas connection, is as quickly and easily installed as an ordinary range boiler.

It heats water quickly, with little gas. Is odorless, silent, safe. Brings back no complaints, avoids adjustment losses.

Made of extra heavy material. In all sizes. Tested to 150 pounds under working pressure, and guaranteed for two years. It's the best non-automatic water heater made. Write direct, or to your jobber, for prices and literature.

Made in Canada
Sold and installed by plumbers exclusively

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Makers of Automatic and Non-Automatic Gas Water Heaters
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R. McDougall & Co., Ltd., Galt.
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The Westco Pumps Limited, Toronto.

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Adjustable to fit any size pipe

Put up in compact rolls convenient for carriage or storage.

Pair of snips only tool necessary.
Saves time and money.

Ask your jobber; if he cannot supply you, write Canadian Distributors

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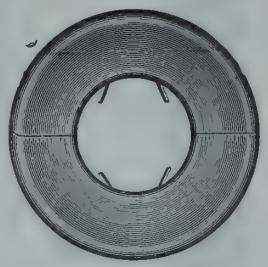
Practically all good buyers of Plumbing and Heating supplies in Canada are readers of Sanitary Engineer, Plumber and Steamfitter of Canada.

OPEN VIEW NO. 10-A

The CEILING PLATE that's better



TOP VIEW NO. 10-A

Gem No. 4.

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾" WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.

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Made from the best brass obtainable. Pressed shell and pressed brass base which eliminate danger from blowholes, which is a fault with cast bases.

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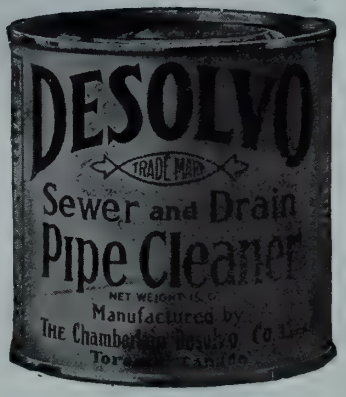
Order to-day and concentrate on them.

At Your Jobbers

Chamberlain Desolvo Co., Limited
110 Church Street, Toronto

General Offices **Pittsburg, Pa.**



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HOYT METAL COMPANY

MONTREAL TORONTO WINNIPEG

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USE WOLVERINE THAWING STEAMER

FOR THAWING FROZEN PIPES

Made from

HEAVY COPPER

and equipped with

SAFETY VALVE

THAWING HOSE

Extra Quality, Smooth White Rubber, with Heavy Wall and

Thawing Hose Connection

for coupling and lengthening hose.

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WOLVERINE LIMITED

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The Hotstream HEATS IN A HURRY TRADE MARK REG. WATER HEATER

Kerosene Water Heater

Here is a REAL Kerosene Water Heater.

Works like a gas heater — easy to operate.

WICKLESS burner generates its own gas and throws a clean powerful flame.

This heater is guaranteed to give SATISFACTORY SERVICE.

Once sold — stays sold — no come-backs.

The price is low — the season is here—send for descriptive folder to-day.

The Hosttream Heater Company

"Makers of heaters that heat"

Cleveland, Ohio

(We make a complete line of single and double copper coil, cast-iron coil, and sectional gas water heaters.)

W. H. CUNNINGHAM & CO.,

269 Richmond St. West, Toronto

Canadian Representatives

Toronto Hardware Manufacturing Co., Limited

Recommend Riveted Range Boilers, the kind that stands the test of time, not the flashy kind that appears good for the first year or two and then gives out.

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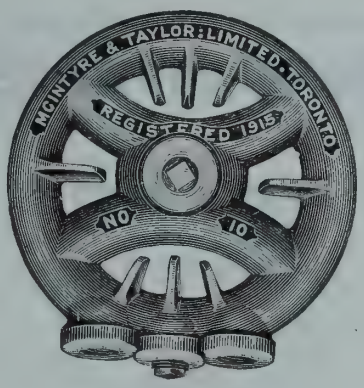
M. & T. Coils

Are Specially Designed To Heat Water With Less Fuel.

Built For Service

Fully Guaranteed



Why Heating Engineers Use M. & T. Coils

Engineers everywhere have met with success when using M. & T. Coils. Reliable and dependable, they fill the bill wherever service counts.

M. & T. Coils are successful because of perfect circulation, liberal waterways, greatest heating surface and hot water production for its size. Made of sound grey iron castings, free from sand and blowholes. Every coil is properly tapped with perfect standard thread. M. & T. Coils are fully guaranteed.

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The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

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by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

Ask your jobber for C.T. Brand of Wrought Pipe.

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Branches: Toronto, Winnipeg, Vancouver.
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Floor or Ceiling Plates
Justly Famous

"B & C" combination cold rolled steel floor and ceiling plates are carried by the leading jobbers in Canada. They are known from coast to coast for their durability and strength. Handsomely nickel plated or plain. Sizes ½ to 2 in. Made in many styles. Order now.

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Southington, Conn., U.S.A.

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Iron Pipe Joint Cement

SETS LIKE GUM
ALLOWS NO LEAKS

Liquid and Powder Form.
Packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans; 100 and 250-lb. barrels. Ask your jobber for prices or write us direct.
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(REGISTERED)

Specially prepared for Hot and Cold Water Taps. All sizes from ½ inch to 1½ inches. Soft, Pliable, and "Joint-Perfect."
Price List and Samples on Application.

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SOLE MANUFACTURERS *586 Commercial Road, London, E. 1.*

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BOILERS, RADIATORS, WARM AIR FURNACES AND REGISTERS

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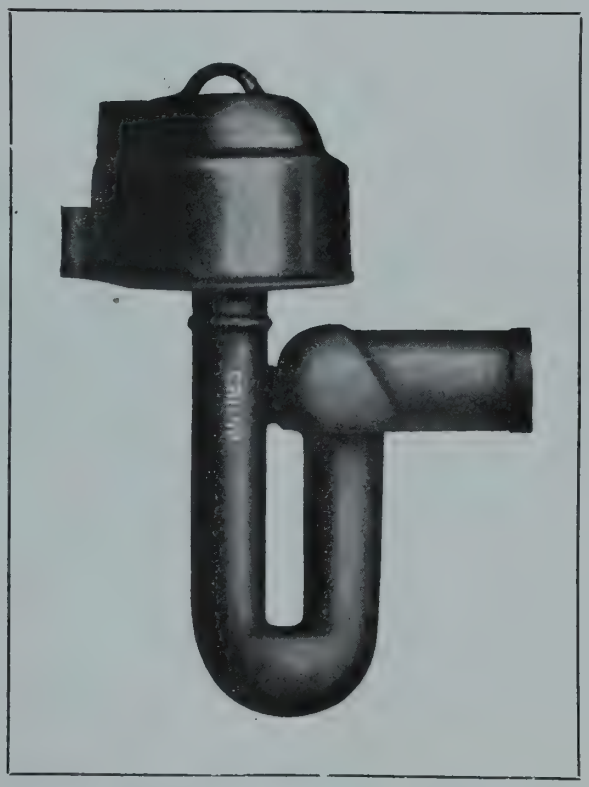
With the beginning of the long winter evenings and slackening of trade you will find time to lay a foundation for next year's work.

Write a personal letter to every farmer in your vicinity and get him interested in modern conveniences for the farm.



Write to us and we will supply you with literature and blue prints for enclosures.

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CAST IRON SOIL PIPE AND FITTINGS

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The Name VITRO Has Made Thousands of Dollars for the Plumbers of Canada

VitrO is more than the name of the composition from which the VitrO Tank is made.

VitrO is a complete tank—tank and fittings—both mighty high-class, as every plumber knows.

VitrO is the name that the public uses when it means "a high-class tank."

VitrO is the name that hundreds of thousands of people know means "no trouble" in the bathroom.

VitrO is the name that has meant a square deal to plumbers from the minute the first VitrO Tank went on the market.

VitrO, because of its high quality, has built up a big, profitable business for plumbers.

More, because the tank itself and the fittings were both tested to give "no trouble," plumbers have been saved the expense of going back to the job to make minor repairs, so that the profit on a VitrO Tank job is a clear profit.

VitrO Tanks fitted with VitrO Fittings are produced exclusively in Canada by

THE GALT BRASS COMPANY, LIMITED

GALT - CANADA

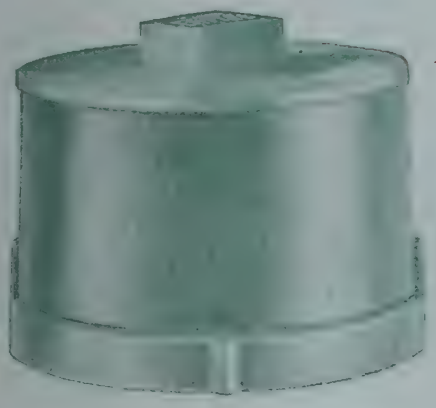
VITRO
NO TROUBLE
TANKS

Sanitary Engineer

Plumber and Steamfitter of Canada

VOL. XIV. PUBLICATION OFFICE, TORONTO, DECEMBER 15, 1920 No. 24

EMPIRE
Cleanout Plug



This plug is designed to give easy access to the sewer and is suitable for test plug. It is also made for iron pipe thread connections. Five sizes: 2 in., 3 in., 4 in., 5 in. and 6 in.

"If it's an EMPIRE product, you know it's right."

When you see the word EMPIRE think at once of highest quality Sanitary Fixtures and Plumbing Supplies. We make and handle everything you need. Write us of the material you require.

Empire Brass Mfg. Co., Limited

London and Toronto, Canada

A Beaver Brand Pedestal
is a Lavatory Fixture Worth While

A HIGH-GRADE LAVATORY THAT CANNOT BE SURPASSED

A bathroom which is fitted with Beaver Brand cast iron enamel ware bears the stamp of quality and lasting service, and a pedestal lavatory puts such a bathroom in a class by itself.

Ask your jobber for BEAVER BRAND CAST IRON ENAMEL WARE

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MANITOBA and NORTHWEST:
E. B. Plewes, 120 Lombard St., Winnipeg

SANITARY ENGINEER, December 15, 1920, Vol. XIV., No. 24. Published 1st and 15th of every month at 143-153 University Avenue, Toronto, by the MacLean Publishing Co., Ltd. Yearly subscription price, Canada, $2.00; United States, $2.50; Great Britain and the Colonies, 8s. 6d.; elsewhere $3.00. Entered as second-class matter at the Post Office, Ottawa. Entered as second-class matter July 1st, 1912, at the Post Office at Buffalo under the Act of March 3rd, 1879.

TINKER TOM'S TALKS.

No. 289

OF COURSE YOU DO!

You remember, Mr. Jobber or Manufacturer, our repeated predictions during the last few months about prices—

Well, lower prices are here and the end is not yet, so it's well to lie low temporarily and make use of our big assorted stock of

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MADE-IN-CANADA

GALVANIZED SHEETS

Special sizes can be put through rapidly. Keep your eye on this space and we'll tell you when we think it's time to stock up. In the meantime "nail" every order in sight.

TINKER TOM

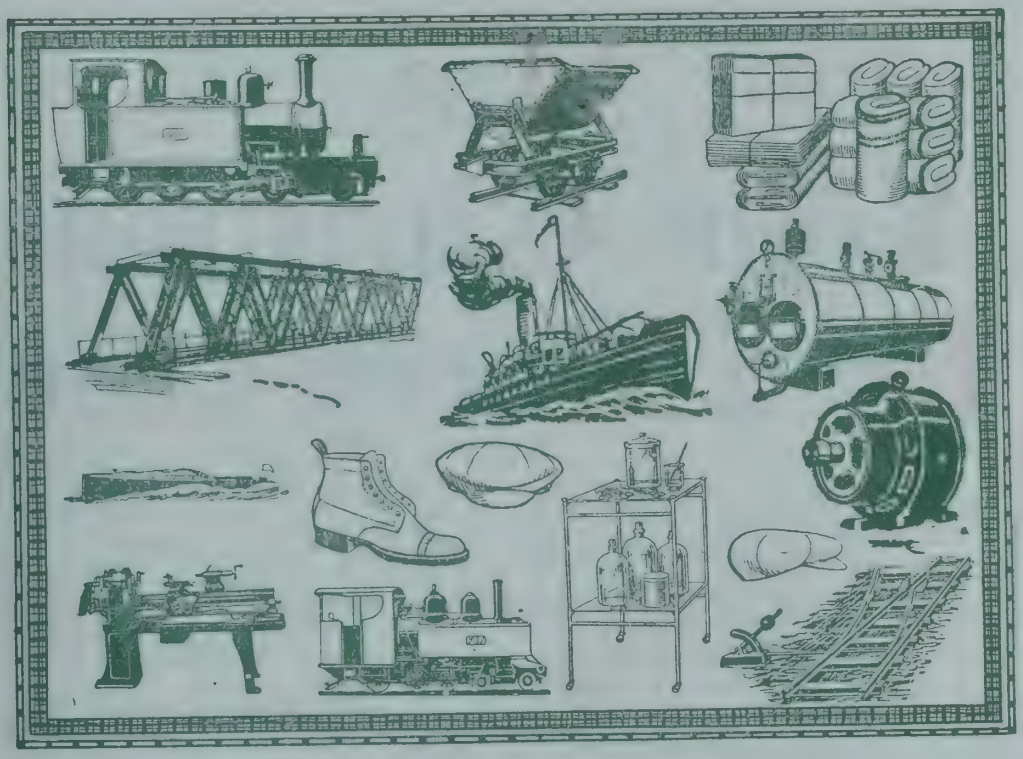
TO THOSE WHOM WE HAVE SERVED IN 1920 WE ARE GRATEFUL.

To those whom we hope to serve in 1921, we offer our confident belief that the new period holds bigger and better opportunities than anything yet recorded in Canadian experiences.

To mankind in general, we extend a spirit of good fellowship and all good Christmas wishes.

CANADIAN BRASS COMPANY
LIMITED
GALT TORONTO

MINISTRY of G R MUNITIONS



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AVAILABLE FOR EXPORT
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Furniture
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Motor Boats, etc., etc.
Boots and Leather Equipment

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Cable address: "DISPEXPORT, MUNORGIZE, LONDON."

May Your Christmas Be a Merry One

FILLED, as ours will be, with appreciation and good-will toward all our friends, and may the New Year bring with it prosperity and gratification in the fulfilment of all your plans throughout the coming year.

"Standard"
PLUMBING FIXTURES
Standard Sanitary Mfg. Co.
Limited

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Toronto Store:
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Calgary:
325 Eighth Avenue West
Hamilton Store:
20-28 Jackson Street West
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"MADE IN CANADA"

Seal Your New Year Resolutions with "Allpriser"

The Season's Greetings

WE extend to one and all the best that the world can give you, which is only your due, for the best that is in you, that you are giving the world.

Determine in your New Year's Resolutions to eliminate all pricing errors that might occur in 1921 business.

Allpriser Service is a reliable and up-to-date price clerk, that you can always have on hand at a cost of 7c a day. It may save you hundreds of dollars in a year! Mistakes are easily made. Begin the New Year right, make Allpriser Service your price clerk and eliminate losses, an indispensable service to the trade—it makes estimating easy.

Allpriser Service consists of a flexible, leather-bound book 7 x 9, of 150 looseleaf pages. The service includes a list of net prices of all staple articles and a regular service of new sheets revised to the latest changes.

A postcard will bring full particulars and sample sheets by return mail.

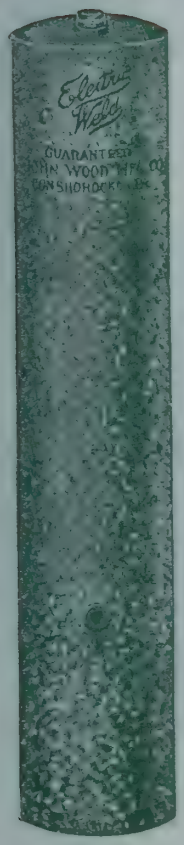
Kenneth B. Allison
4 Irwin Ave.
Toronto

A Christmas Message

To those who have been associated with Wallaceburg Brass & Iron Mfg. Co. during 1920, we thank you for your favors and hope that we were, in some measure, instrumental in making this a successful year for you. May we couple with our Season's Greetings our assurance of untiring service to you during 1921.

THE
WALLACEBURG
BRASS & IRON MFG. CO.
LIMITED

Electric Weld Range Boilers



The Canadian John Wood Mfg. Co., Limited

Wish their Many Friends

in the Canadian Trade

A Merry Christmas

and a very Happy New Year

Canadian John Wood Mfg. Co., Limited

Grand Trunk Railway and Hillingdon Avenue

Toronto, Canada

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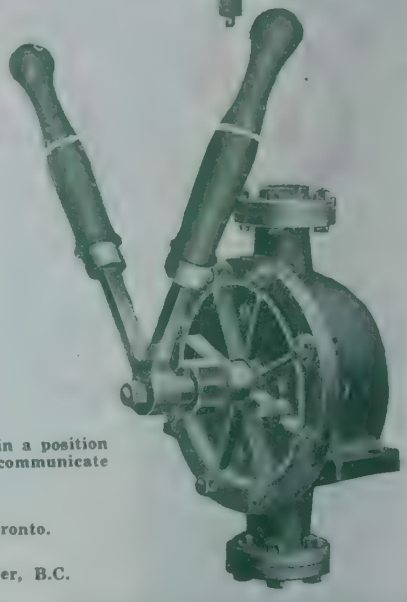

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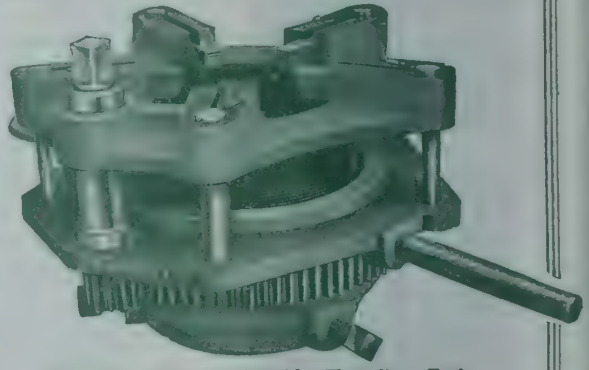

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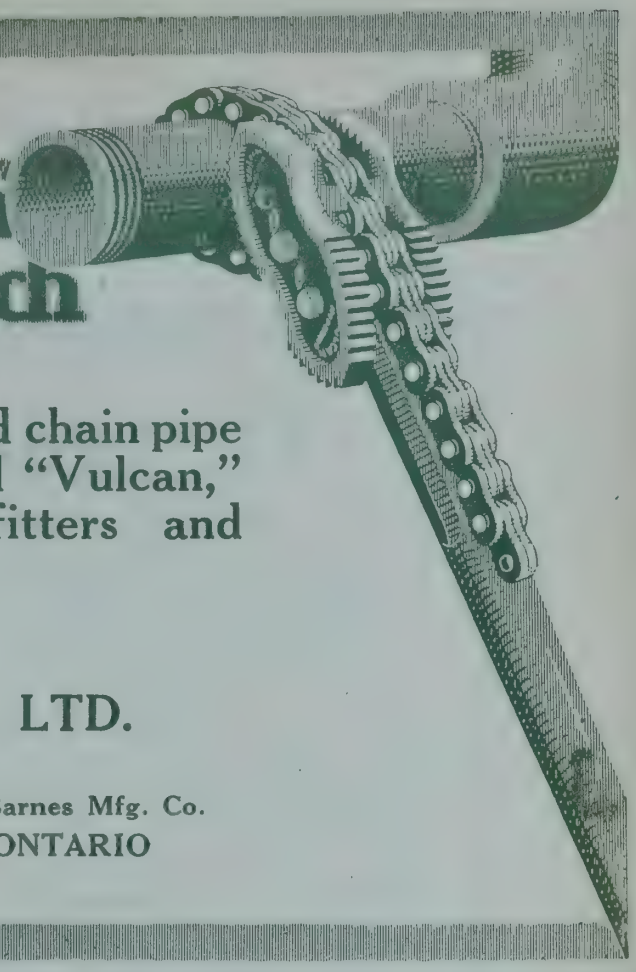

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SANITARY ENGINEER
PLUMBER AND STEAMFITTER OF CANADA

ESTABLISHED 1907 PUBLISHED TWICE MONTHLY

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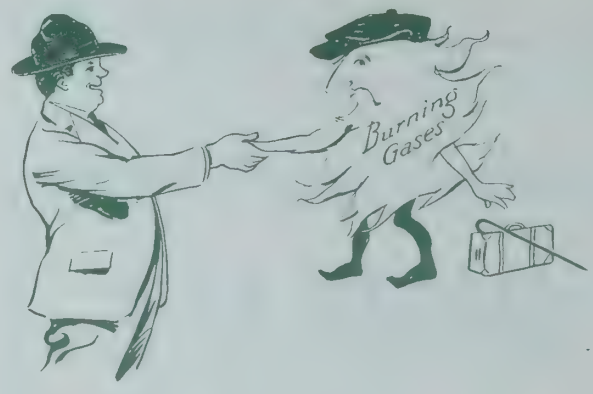


Then We Bade Him Good-bye For A Long Journey

By Booster Bing

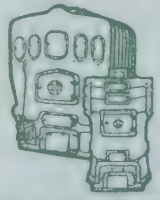
SAYS I one day to our old friend Burning Gases: "You have got to start taking long journeys. The Big Boss is sick of the way you scoot up the chimney every time his back is turned and go off wandering around in the air any old way.

He has mapped out a route for you to take. A long route, back and forth three times the length of his boiler.

When you have done that you won't be so frisky. In fact about all the frisk will be taken out of you and sent into the radiators.

From now on you are the angel child of coal economy. It's your long fire travelling, that's going to make the Burnham's short coal bills."

And by heck it did; which only goes to show, we ought to have sent old Burning Gases off on his long travels, long, long ago.



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Vol. XIV. TORONTO, DECEMBER 15, 1920 No. 24

Extra Effort on Collections Required

Plumbers Need Banks' Co-operation in Collections, Not Further Credit—Increasing Tendency to Neglect Obligations—Some Favorable Factors in Outlook

MONEY stringency, which for some time has been affecting certain lines of trade to a considerable extent, has recently extended its effect on collections to the plumbing trade. A situation has resulted which calls for the immediate attention of plumbers in order that its effect may be curtailed. Briefly, the condition is one which calls for extra effort to collect accounts and keep business in as liquid a shape as possible. This policy has been advocated in Sanitary Engineer on many occasions, but the tightening up process is continuing and it has overtaken some dealers who have not followed this plan with the result that wholesalers report an increase in the number of merchants in difficulty in so far as meeting their obligations are concerned.

Under these circumstances there are many merchants whose first thought is to turn to the bank and ask for further credit accommodation, and because the banks have found it necessary to adopt a conservative policy the criticism has been made that the banks are not giving as much accommodation as they should at this time. The showing of substantial profits in bank statements appearing in the press has been pointed to significantly by those making this claim.

Banks Exceed Normal Accommodation

Discussing this matter with the head of a wholesale firm, a man who is also a bank official, it was stated to Sanitary Engineer that the banks are the trustees of the people's funds and that they must loan where this money will be safest and most profitable. He demonstrated that the increase in bank deposits within the past two years had been exceeded by the increase in current loans, indicating that the banks had given more accommodation in this period than would ordinarily have been the case.

This official supports the advice given by others in the trade, namely, to seek the co-operation of the bank in collections, he believing that there is little reason for the inability of dealers to collect their book accounts. Dealing with conditions in the rural districts, he was of the opinion that the ability of the farmers to hold up their crops in the hopes of better prices is an indication that they have means and should not be allowed to hold up the business of the local plumber and make it impossible for him to maintain the necessary stock and allow him to take his cash discounts.

No Reason for Pessimism

The opinion was expressed that there is no reason for pessimism in the business outlook, though doubt was held as to the possibility of any merchant making large profits during the next year or so. This official believes that the requirements of the people are not decreased and that the longer trade is deferred the greater will be the rush later. He cites the building trade as an example of an industry which provides a large volume of business in plumbing goods, and which bids fair to shortly revive from its inertia of the last few years. He mentioned an architect in the city of Montreal who was holding up building permits to the value of seven million dollars until February next. Other architects are similarly fixed and many builders have signified their intention of building in the spring. The increase in labor efficiency, as recently noted, was pointed to as a favorable factor. The recent improved movement of the Western crop was also mentioned as an aid in overcoming the difficulties of railway car shortage. The marketing of this crop will make its effect felt on general business conditions.

Do Not Seek Further Credit

To those in the trade who are inclined to seek further credit accommodation from the bank instead of securing collection of outstanding accounts, the advice is that if the bank was to fall in with such wishes it would not be doing justice to the trade. The suggestion is made that plumbers help to keep their business in as liquid a condition as possible by making the fullest use of the banker's co-operation in securing collection of accounts. The suggestion made is that plumbers who have long standing accounts on their books take the accounts to the banker and check over the list with him and get the benefit of his knowledge of the parties concerned. A decision can then be arrived at as to the best means of collection. An opportunity should be had

(Continued on next page)

Allege Combine Among Plumbers

Toronto Ex-Official of Local 46 Makes Charges Which Are Denied by Secretary of D. S. and H. E.

CONSIDERABLE discussion has been aroused in Toronto plumbing circles over the charge made by S. Williams, a former official of Local 46 Plumbers and Steamfitters, to the effect that a combine, detrimental to trade, existed between the union and the Master Plumbers' Association. He is reported to have declared that plumbers and steamfitters could not take a job in Toronto without the consent of the union under penalty of a $15 fine. The union, he said, would boycott any employer who did not belong to the Master Plumbers' Association, therefore work was done by the Master Plumbers' Association at certain rates and competition was stifled.

Dealing with this matter the following statement has been made by Garrett F. Frankland, secretary of the Toronto Society of Domestic, Sanitary and Heating Engineers:

"We welcome an investigation by the Attorney-General or anyone else into the vague charges that there exists in any shape a combine.

"The Master Plumbers operate under a corporation charter, which makes its members very careful. There is nothing illegal in any of our operations. We operate a closed shop for the benefit of the members of Local 46, and I can tell you that many of the members of 46 are working for outside concerns, those that are not affiliated with our body."

The Agreement

The articles of agreement made between the Toronto Society of Domestic Sanitary and Heating Engineers and Local Union 46, of United Association of Plumbers and Steamfitters of the U. S. and Canada are said to be "with a view to promoting the business of heating and sanitation, to organize those persons who are qualified therein, in order to allow these trades to insure a standard of efficiency for the protection of the public and for those persons engaged in such business, by establishment of and maintaining fair conditions and settling of differences that may arise between the members of the respective organizations, parties to this agreement, and to maintain industrial peace."

The agreement sets forth rate of wages, hours, apprenticeship, etc., that only members of the United Association be employed and that these men only work for a licensed sanitary and heating engineer. Grievances between the parties are to be settled by a joint arbitration board. No strike to take place till the general office of the United Association has sent an officer to investigate the matter.

The agreement became effective July 1, 1920, and remains in force till June 30, 1921, unless otherwise affected by the Joint Industrial Council of Toronto Building Trades. Provided a month's notice of desired amendment is not given prior to June 30, 1921, the agreement is to remain in force from year to year.

The agreement is signed by Garrett F Frankland, secretary of Sanitary and Heating Engineers; Jas. Richards, president, and A. McBain, secretary of the local union 46, and by John W. Bruce, organizer.

LACK OF HOT WATER A BREACH OF CONTRACT

Montreal.—Montreal's apartment house tenants have a new source of grievance. The trouble is that hot water is not as plentiful as it once was, due to the high cost of coal. Time there was when janitors told prospective tenants first thing of all "there is all the hot water you want the year round." That day has passed. In many apartments furnaces were lighted much later this fall than heretofore and in every instance the excuse was given "repairs being made." This was no exaggeration, but the repairs were not the kind the tenants thought. They had visions of radiators hotter than ever, and water bubbling with heat running from every tap.

What happened, however, was something different. The repairs made effected a junction between the hot water pipes and the furnace that did the heating. Previously there used to be a special furnace to heat the water for domestic use. Now the only hot water many of the tenants in some of the big apartments get is of the kind that is even too cold to shave with. This means the heating of water for washing dishes and the like.

Some of the disgruntled ones think they have found clauses in their leases by which the landlords are compelled to supply them with hot water, but no one has nerve enough yet to make a test case in the courts. The landlords' invariable answer to all the complaints is "What do you expect with coal at $17 a ton?"

NEW PUMPING FACILITIES

As a result of the getting together of Mimico and New Toronto sewerage committees on the question of increasing the capacity of the pumping station at Mimico, a leading firm of engineers has been instructed to prepare specifications and advertise for tenders for the installation of proper pumping facilities at the pump house, and further to prepare specifications for increasing the capacity of the disposal plant to cope with the enlarged pumping capacity.

EXTRA EFFORTS ON COLLECTIONS

Continued from page 16

of stating the true facts of the case to the negligent customer and if he then fails to make even a partial adjustment, a plan which has been used with good success is that of placing a draft in the bank covering the amount in arrears. Some plumbers have followed the plan of offering the banker ½% on such collections in place of the usual ¼%, as an added incentive to arrange settlement.

In connection with this plan it is thought that the customer is more likely to take action on the matter when in the hands of the bank than on reminders from the plumber himself. Another point emphasized was that seeking the co-operation of the banker in this way would tend to strengthen the bonds of interest between the trade and the banks with the resultant increasing of good faith between them, an advantage to both concerned. Such action is advised firstly in connection with long standing accounts. The plan of offering a discount for cash is being followed by the trade in some districts but it is not thought to be necessary or advisable except perhaps in some isolated cases.

Another official interviewed on the subject by Sanitary Engineer pointed out that the trade would find it profitable to devote more attention to the accounting end of their business at the present time. He cites the case of one merchant whose trade included plumbing and tinsmithing, and required more attention than could be given by the proprietor. The result was that accounts were neglected and the supply houses found it necessary to hold two mortgages on the property as security. This merchant was informed that he was doing too much work and not paying sufficient attention to business details.

About six months ago this advice was heeded and a girl bookkeeper was installed at a nominal salary. Since that time business has been put on a much sounder basis than before. Not only have the merchants' accounts been met readily, allowing him to take advantage of cash discounts, but he has made sufficient to allow him to pay off one of the mortgages against his property. This case demonstrates the advantages of systematic handling of accounts, especially under present circumstances.

Under present conditions when it is more difficult than usual to collect accounts, and when the merchant must keep his business in as liquid a condition as possible, the suggestion is made that many dealers could profitably install a bookkeeper at a moderate salary to make collections and keep the accounts in first class shape so as to facilitate adjustment. Customers will soon come to appreciate the fact that they are dealing with a modern business institution and the result will be what the plumber needs to help him safely over the period of readjustment.

A Problem In Sewage Disposal

Interesting Point Raised in Connection With Small Sewage Disposal Plant

(Question).—Please give us your opinion of what would be the best way of getting sewage disposal under conditions as represented (see sketch). The building is to be used as a private hospital in a small town.

Miller & Libby, Oshawa, Ont.

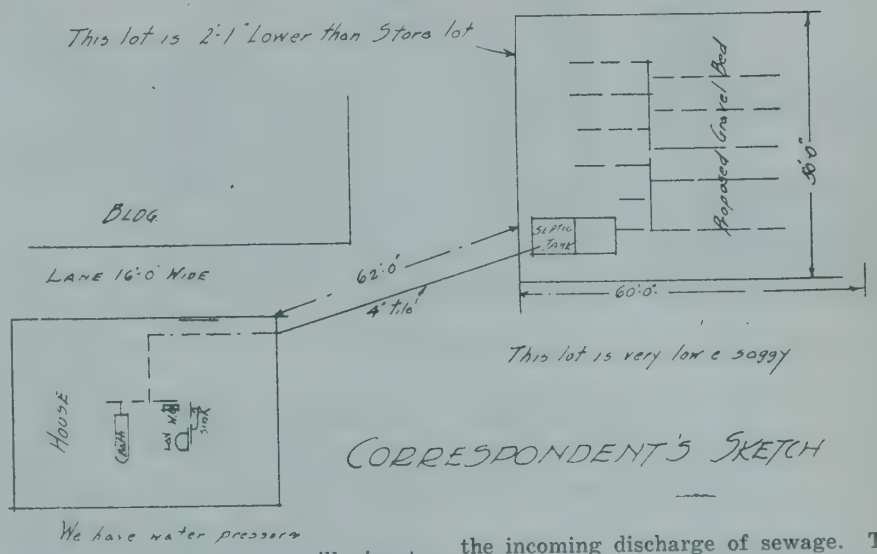
(Answer).—The accompanying drawings illustrate two different types of construction for small sewage disposal plants.

While the construction details of these plants differ the principles involved in the process of sewage purification are the same in both cases, viz.: First, the reduction of the solid matter of the sewage to a liquid, and then, the aeration of the resulting liquid.

Before taking up the details of construction for these plants we wish to refer to the principle on which this system of sewage disposal is based.

The drawings, Fig. 6, and Fig. 6a, should now be referred to.

First it should be noted that the house sewer empties into a compartment of the septic tank which is termed the "reducing" chamber. It is here that the flow of the sewage is retarded with the result that the solid matter sinks to the bottom of the tank. These solid matters become changed into liquids and gases by the action of anaerobic bacteria.



CORRESPONDENT'S SKETCH

Some of the solid matters will rise to the surface of the liquid contained in this chamber, and will there form a "mat." The mat assists in preventing light and air from coming in contact with the anaerobic bacteria, and in this way hastens the decomposition of the solids.

The tee that is placed on the end of the house sewer is for the purpose of preventing the breakage of the "mat" by the incoming discharge of sewage. The top of the tee must be left open, so that the air driven ahead of the house sewage will not be discharged into the reducing chamber below the "mat."

Now remember that the sewage is not purified in the reducing chamber. In fact, the effluent discharged from the reducing chamber is perhaps more narmful to health than is fresh sewage. Before it can be considered harmless it requires further treatment.

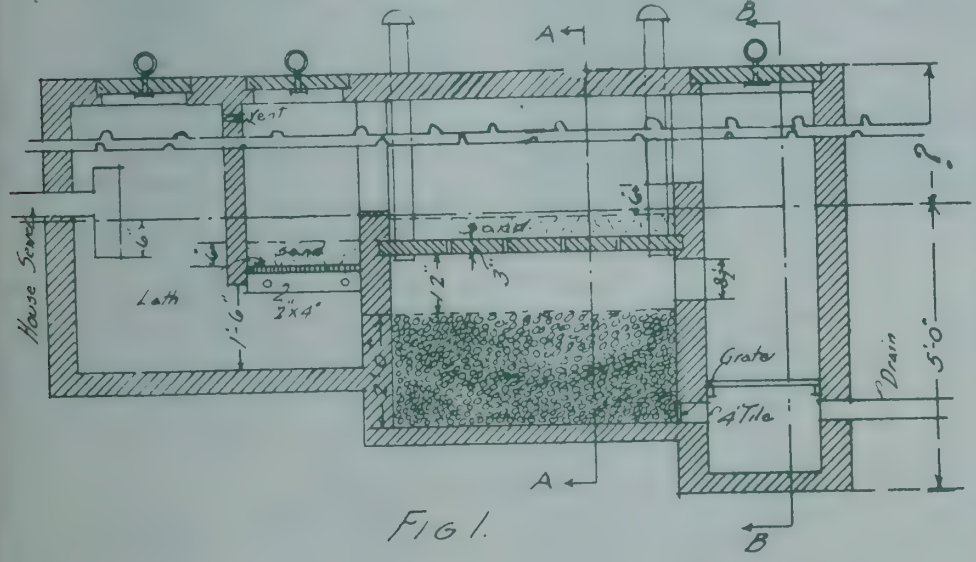


FIG 1.

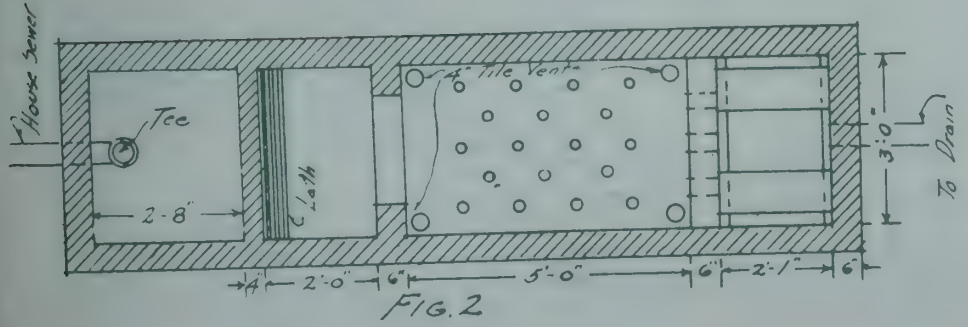


FIG. 2

Secondary Treatment

The secondary treatment of the sewage is by aeration. The cut, marked Fig. 6a, shows how aeration is effected in a "breathing field" of open tiles set at from 12-inches to 24-inches below the surface of the ground. It is in the "breathing field" that the effluent from the septic tank is oxygenated by the action of aerobic bacteria.

Now, the aerobic bacteria must have time to rest and multiply. It is, therefore, necessary that the discharge from the septic tank be not continuous.

The function of the "dosing chamber" is to break the continuity of flow, and thus dose the "breathing field" at intervals only.

The size of the reducing chamber is controlled by the amount of sewage that is to be treated. The sewage must not remain too long in the tank: twelve hours is a good limit of time. For a household of from eight to ten persons the reducing chamber should be of a size that will contain about 280 gallons. The dosing chamber should contain about 160 to 180 gallons.

The open drain tiles, in the "breathing field," should allow for 1-ft. tile for each gallon of sewage, and, at least, five square feet of ground area for each foot of tile. These tiles should not have a greater fall than 2 inches in a hundred

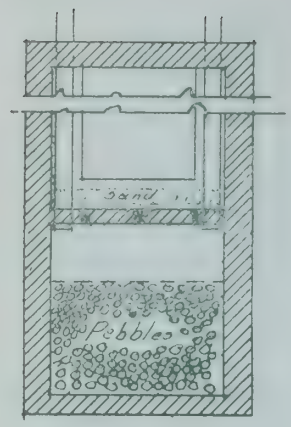


FIG. 3

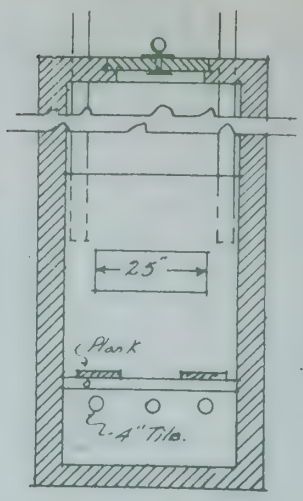


FIG. 4

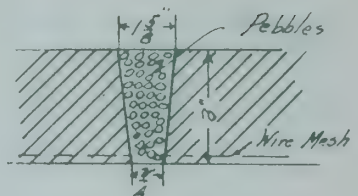


FIG. 5

feet of run, and they should branch out of the main tile at an angle of 45 degrees. The joints should be covered on top to prevent the earth from entering the pipes from above.

Referring again to Fig. 6, we note that a syphon is shown at the bottom of the dosing chamber. There are a number of different types of syphons on the market, and in setting these syphons care must be taken by the fitter to see that they are installed exactly as their manufacturer directs. If a syphon is set too far above the bottom of the tank, the sewage in the dosing chamber may rise to the level of the top of the chamber before the syphon will act.

The vent pipe connecting the breather and the dosing chamber is supplied for the purpose of allowing the escape of air as the effluent enters this part of the tank, and, also, to allow air to reenter the dosing chamber when the syphon comes into action. The ventilation of the tank is not for the purpose of treating the sewage; it is for the purpose of mechanical action in the charging and discharging of the effluent.

Where the ground levels are such that the "breathing field" can be set close to the surface of the ground, and where that ground is of a poisonous nature, a plant such as is illustrated by Figs. 6 and 6a will meet with the requirements of the average household.

No Room For Breathing Field

When the circumstances surrounding the installation are such that no room can be found for the "breathing field," or when that field is likely to become water soaked, it will be necessary to use a combination tank similar to that described by cuts Figs. 1, 2, 3, 4, and 5.

Fig. 1 is a section through the length of the tank. This figure shows the construction of the tank, and illustrates how the process of sewage purification is effected.

First we have the septic tank, which is 2-ft. 9-inches deep from floor to water line. It is 3-ft. 0-inches wide and 2-ft. 8-inches long. It is here that the solids are reduced to a liquid.

Separating the first and second compartments of the tank there is a wall. This wall has three 2-inch vents near its top, and is open at the bottom. As the sewage rises in the tank, part of it passes under this wall and finds its way up through the first sand filter. The depth of this filter is 6 inches.

The first, or upward, sand filter is carried on double strength lath set on edge. The lath should be spaced about twice their thickness apart and fixed with spacing blocks. Over the lath there should be set a layer of fine pebbles. Just enough pebbles should be used to support the sand. The lath are to be supported on 2-in. x 4-in. strips, which are bolted to the side walls.

Action on Flushing

With each flushing of a fixture in the house the sewage rises in the tank and flows over the weir which separates the upward and downward sand filters. The top of the weir is 1-inch above the water line.

The downward sand filter provides for a depth of 5-inches of sand. The floor of this filter is a 3-inch concrete slab, reinforced with wire mesh. Fig. 5 shows part of this slab and one of the eighteen perforations through which the filtered sewage escapes to the "breathing chamber" below.

The breathing chamber is 3-ft. 0-ins. in depth from the underside of the 3-in. slab to the floor below.

The "breathing chamber" is to be filled with 1-2-inch pebbles to within 12-inches of the filter floor above, and is to be vented by way of the four 4-inch tiles shown as running through the top of the tank at the grade level.

As the sewage drops from the second sand filter it is partly aerated in the 12-inch open space, but the greater part of the aeration takes place in the bed of pebbles.

From the pebble bed it passes through three 4-inch tiles into a drainage chamber. From here the sewage may be drained into any convenient outlet, such as a stream or an open ditch. If a drain for this chamber can not be provided, it will be necessary to increase the depth and size of the lower portion of the basin, so that some storage space may be provided where the purified sewage may remain until such a time as it may be conveniently pumped out on the ground.

The sewage after passing through a tank of this kind should be perfectly harmless. However, if the aeration bed should become clogged the drainage chamber provides a chamber where the sewage may be treated with chloride of lime or some other disinfectant. But there is little danger of the filter or of the pebble beds becoming inoperative as the provision of the necessary manholes will make it an easy matter to provide for such adjustments and repairs as may be required from time to time.

Fig. 3 shows a section of the tank taken on the line A-A.

Continued on Page 38

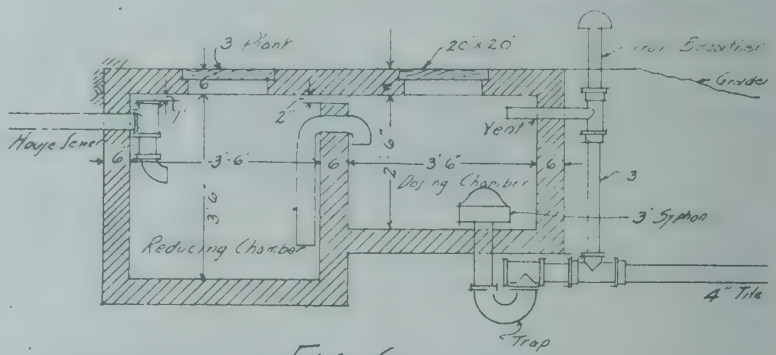


FIG. 6

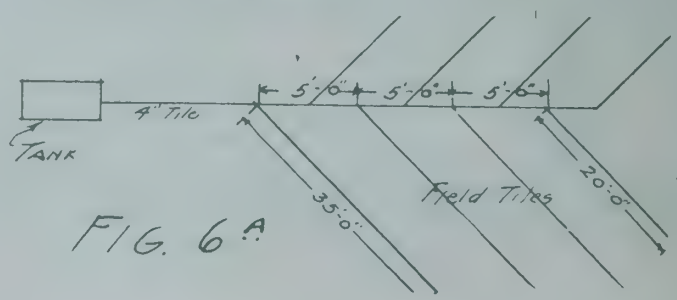


FIG. 6A

Plumber's Charge Upheld

Interesting Points Brought Out in Judgment in Favor of A. J. Krecenski, Melfort, Sask., in Action to Recover Costs of Plumbing Work

A DECISION which brings out a number of interesting points is the judgment given in favor of A. J. Kracenski, plumber, of Melfort, Sask., in an action against W. J. Saunders, a property owner of that town, to recover additional cost of installation work due to changes ordered by Saunders after the original estimate had been made. The plumber had made an estimate and had applied for a permit and filed sketch of the proposed work as required by the by-laws of the town. The work, as originally planned, contemplated the installation of a 4-inch soil pipe running from an existing sewer connection in the basement to the basement stairs and thence vertically through both stories of the building and out through the roof. The only connection to this soil pipe was for a kitchen sink in the second story.

The work was accordingly commenced and when the plumber reached the point where he proposed to run the vertical soil stack Saunders interfered and required him to place the stack in another location. The result of this was that the soil pipe was too far away from the kitchen waste to permit the sink trap being vented into the main stack and a separate vent had to be provided through the roof. Saunders also required some other work done; the differences appeared from the two plans prepared by the plumber and filed with the local plumbing inspector.

The Defence

Saunders' defence was that the work was carried out according to the original plan and that he was not responsible for any additional charge. In considering the case the judge pointed out that so many changes and additions had been made that it was impossible for him to treat the original contract as subsisting and the additional labor and material as extras. He therefore treated the original contract as abandoned and allowed the plumber upon a quantum meruit basis.

A point which aroused some discussion was the charge of 10% made by the plumber which, he says, was agreed to by Saunders as cost of upkeep of tools and shop. Other plumbers called by Saunders as witnesses said they had no knowledge of such a charge ever having been made previously. The judge thought that as the plumber was charging 33% above cost for materials and $1.00 per hour for labor, this was sufficient charge and disallowed the 10% charge.

Saunders presented estimates from other plumbers as to materials and labor required on the job but the judge held that such evidence indicated the plumbers responsible for them were incapable of making an estimate, through lack of experience.

Judgment for the full amount of the claim, less the 10% charge referred to, was allowed the plumber, plus the costs of the action.

NEW WATERWORKS SYSTEM AT ACTON

Acton, Ont.—The Central Foundation Company has about completed its contract for laying mains and putting in services. Water was turned on last week and every hydrant tested. The flow of water was very satisfactory. The Canadian Chicago Bridge and Iron Co. are making good progress in the erection of the steel tower and tank at the reservoir.

HERE'S A GOOD XMAS SUGGESTION

THERE are a number of lines which the plumber can feature in his windows at the Christmas season to aid in stimulating business in his line. Take, for example, the window shown herewith as dressed by Ecclestone & Bates, Bracebridge, Ontario. This display was arranged a few weeks before Christmas, the window being decorated suitably for the occasion. In the foreground bathroom mirrors, brushes, sponge racks, towel holders, soap and tooth brush holders, etc., are shown, each marked plainly with a price card. These lines are suitable as gifts, and under prevailing conditions wherein more practical gifts are the order of the day, such a display could be used to advantage by many plumbers at this time of the year. The windows should help pay the rent of your store, and there is no better time to test out their value than at Christmas. Many dealers are finding their windows are a valuable asset which has not been taken into consideration by them in recent years. It is part of the trade extension campaign now being waged to show the value of window displays. Here's a good suggestion for you.

Are You Interested in Combination Heating Systems?

An interesting and practical series of articles dealing with combination warm air and water heating systems has been written exclusively for Sanitary Engineer by N. A. Kearns. This has developed into an important phase of heating installation work and such instructive articles will therefore be timely. Watch for the first of the series to appear in January 15 issue of Sanitary Engineer.

Are Tinsmiths Manufacturers?

Important Point in New Taxes To Be Decided by Test Case—No Prosecutions in Meantime —Refund To Be Allowed

AN order-in-council definitely classifying as manufacturers those retailers who make an article from the raw material, such as tinsmiths making eavestrough, stove pipe, etc., was passed by the Government the latter part of last week. In face of this development the announcement of the Retail Merchants' Association, to the effect that such retailers should ignore the ruling providing that they take out a manufacturers' license and remit a 2 per cent. sales tax on such articles, has been questioned by some in the trade. The question naturally asked is "What authority has the Retail Merchants' Association to advise retailers to go contrary to the Government regulations?"

In pointing out to Hardware and Metal the position of the R. M. A., Mr. Miller, Ontario secretary, stated that a test case was to be made at the earliest opportunity. A prominent retail merchant in the Maritime Provinces is likely to be the subject of the test.

No Prosecutions

"Mr. Taylor, Deputy Minister of Inland Revenue, was in this office a few days ago and stated that the test case prosecution would be brought on without delay, possibly within a week, and that meanwhile there would be no further prosecutions against such retailers who neglect to take out the manufacturers' license," said Mr. Miller, who added that he had assurances that if it is proved the Government has no authority to class any retailer as a manufacturer, those retailers who have already taken out manufacturers' licenses will secure a refund of the fee and any additional tax which has been collected. On this basis such retailers are protected either way.

The basis of the objection made by the R.M.A. is that the Government has no authority to class a retailer as a manufacturer, and that such a plan is a discrimination and will hamper trade. The solicitor retained by the R.M.A. saw nothing to this effect in the bill and gave a written statement that retailers are not liable to the manufacturers' license. Sir Henry Drayton, when appealed to, advised the merchants to put the case before the board, which referred them to the Cabinet to have an order-in-council passed. The fact that many of the Cabinet ministers have been away on Governmental duties recently is said to have delayed the expected order and in the interim the R. M. A. have taken it upon themselves to take responsibility for merchants who follow their advice. The test case will provide a precedent to follow and the prosecution is awaited with interest.

The official protest of the R.M.A. which is to be made at Ottawa when all the evidence is in should not long be delayed now that the Tariff Board has returned to the capital.

The Ontario Branch of the Retail Merchants' Association was in consultation privately with the Tariff Board when in Toronto and put on record the objection of the provincial organization against the present form of taxation and suggesting a sales tax on the source of manufacture or importation. The general protest will be made to the Tariff Board on its return to Ottawa by the secretary of the Dominion Board of the R. M. A.

INDUSTRY FOR BARRIE

Ontario Production Company, manufacturers of bricks, concrete blocks sewer pipe and tile, are moving to Barrie, occupying premises formerly held by the old Barrie Brewery. Machinery is being installed. The offices are being moved from Toronto to Barrie.

Stratton, Ont.—New plans for school to cost $30,000 for Morley Consolidated School Board, are completed and tenders for erection of building will be called early next year. G. G. Gainsby, secy., Stratton.

A Christmas Ad Suggestion for the Plumber

"The Ideal Family Gift"

Make Your Christmas Gift One That Will Give Unbounded Pleasure to the Whole Family

One that will fill a real home need — A WELL-EQUIPPED BATHROOM. Do you know of any other Gift that would create a greater degree of delight, and that would give more comfort month after month and into the years, than this most enduring gift?

There are prices and designs to meet all purses and tastes, and each model guarantees a full measure of sanitary safety.

Choose your Bathroom equipment carefully, for it is so well made and substantial that it will last a long time. If you let our Showroom be your guide you will obtain the fullest measure of value for the money you expend.

Our Christmas Mirrors Arrived This Week
Round *Oval* *Square*

Business Hours: 8 a.m. to 5 p.m.; Saturdays to 1 p.m.

Wm. Stairs Son & Morrow Ltd
Halifax, N.S.

The advantages of publicity, either through advertising or display, can be had by the plumber in good measure. Such advertising as that shown herewith can be used in connection with Christmas trade. Gifts of more practical value are being given, and what could be more useful than a gift of bathroom equipment?

Sewage Disposal for Small Communities

A Most Important Series of Articles, by Bernard E. T. Ellis, for Which "Sanitary Engineer" Has Secured the Exclusive Rights—Keep the Entire Series Where It May be Referred to and Studied

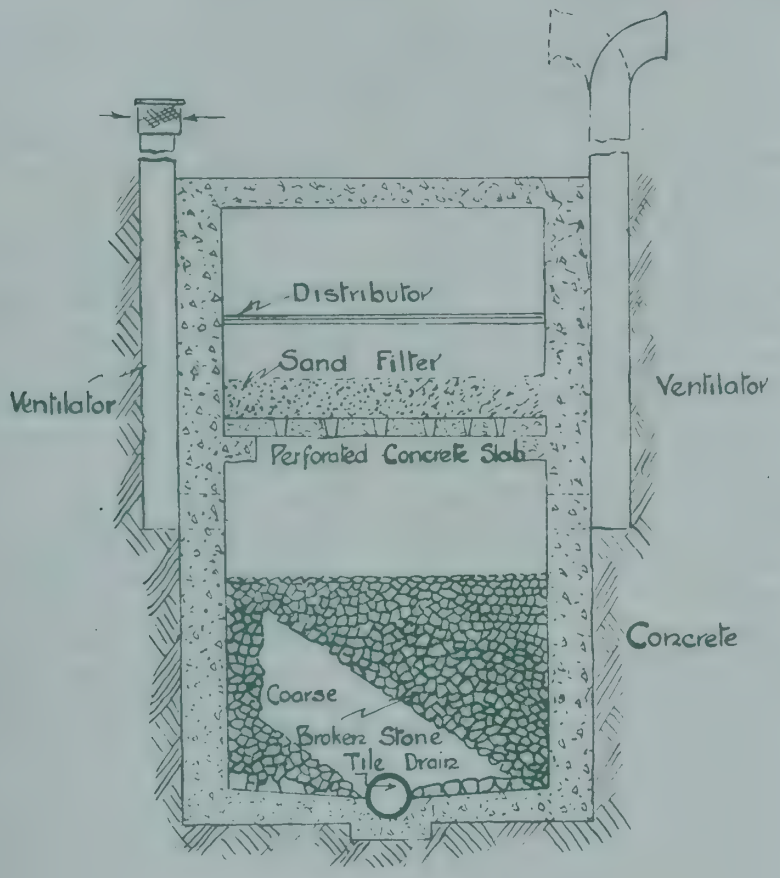


FIG 29.

Article No. 22 of the Series—Illustration No. 29

(Continued from last issue)

Sewage is clarified in these tanks by means of bacterial life (anaerobic) mentioned and described previously, and is the direct result of septic action by anaerobic bacteria.

Putrefaction takes place in the deposited organic matter through the action of these bacteria and same is partly liquified and split up in very fine particles of organic matter in suspension, which, in time, unless very fine screening precautions are taken, will eventually clog up the filters and thus reduce their total capacity.

One of the chief advantages set forth in this type of tank is that the volume of sludge is reduced by this septic action of liquefaction and the process of purification is similar to the small private house septic tank only carried out on a larger scale. Owing to the good results, cheapness of installation and adaptability of the tank effluent for being successfully treated by land filtration, this system so far has proved the best and most economical to instal for small communities.

(To be continued).

EDITORIAL COMMENT

A MERRY CHRISTMAS

TO all sanitary and heating engineers throughout Canada, "Sanitary Engineer" extends best wishes for a Merry Christmas and a Prosperous New Year. Allowing one's mind to reflect over developments of the past twelve months, since this greeting was last extended, it is evident that the trade has been passing through a period of readjustment and that it has as a whole conducted itself nobly in face of the difficulties which have threatened on all sides. This result has been brought about solely through the employment of that spirit of co-operation and good-will of which Christmas is symbolic. The difficulties are not all past yet, but a continuation of this spirit will go a long way towards helping a solution of the problems of the day and after the storm the sun always shines again.

PLUMBING BUSINESS ON CASH BASIS

TOO much stress cannot be laid at the present time on the importance of plumbing and heating engineers keeping their business in as liquid a state as possible. This in effect means the placing of the business on a cash basis and the elimination as far as possible, of credit. Within the past few weeks some merchants in many parts of the country have found increased difficulty in securing settlement of "accounts receivable." Under such circumstances it is easy enough for the merchant to go to his banker and expect credit accommodation. He may be surprised this time to find that such accommodation cannot be had, and it is very doubtful if it would be doing the merchant a favor to allow further credit. Conditions are not so bad that the average customer cannot meet his obligations and there is no reason why the dealer should be called upon to suffer when increased effort along the right lines will probably right the difficulty. It is a good time for merchants to keep in close touch with their bankers, not for the purpose of getting credit but for the advice and co-operation which can be secured in regard to best means of collection and merchandising methods which should be adopted and other such matters. The banker will appreciate the evidence of good faith and desire for co-operation on the part of the merchant who brings his books and lays his cards on the table. Good relations between banker and merchant are much to be desired at all times.

THE NEED FOR PLUMBING CONTRACTS

THE legal action of Kracenski vs. Saunders, Melfort, Sask., to recover additional costs for plumbing installation due to changes ordered by the property owner after the original estimate had been made, emphasises the necessity of plumbers adopting some recognized form of contract on which the estimate of specific work to be done, both in materials and labor, is fully outlined and agreed upon by all parties concerned. Such a form would have precluded any question of what defendant owed the plumber in the case outlined and he would therefore have felt he had little hope of a favorable decision in an action under such circumstances. Of course the filing of plans with the local plumbing inspector, showing that changes had been made since the original estimate, was sufficient to give the plumber a clear case, but the waste of time and unsavory publicity of such legal actions would alone be sufficient reason why all steps should be taken to protect both parties in all plumbing work by the use of some one of the various forms as outlined in Sanitary Engineer from time to time.

CLEAR the decks for action. The Christmas battle is on.

* * *

TREAT a new customer right and he will become an old customer.

* * *

THE war has shattered a law of gravitation among other things. It has always been considered easier to drop a thing than to raise it. But this is hardly applicable to prices.

News from Here and There

CONTRIBUTIONS OF NEWS GLADLY ACCEPTED

BUSINESS CHANGES

Montreal.—Webster & Caffrey, plumbers, have dissolved partnership.

FIRE LOSS

Moncton, N.B.—Wm. Watson, plumber, has suffered fire loss.

PERSONAL

Toronto.—Mr. H. Moore is now sole proprietor of Moore's Sheet Metal Works at 2739 Dundas Street, Mr. Sofley resigning.

Ottawa.—J. A. Langelier has discontinued the contracting department of his business and is now dealing only with the wholesale trade.

Toronto.—James Downing, a plumber, living on Lappin avenue, on behalf of himself and his son, Stewart Chalmers Downing, aged 8, is suing the G.T.R. for $5,000 damages.

WESTERN ONTARIO NOTES

L. G. Bridgeman, Bank of Commerce, London, wants prices on plumbing, hot water heating and electrical work for new $9,000 residence for which he is preparing plans.

* * *

Frank Wilson, of St. Mary's Ont., plumber and tinsmith, has purchased the estate of the late Sidney Fraleigh, including the large residence and beautiful grounds.

* * *

John Bennewies, M.P.P., of Brodhagen, is preparing plans for a new $7,000 dwelling to be erected at Dublin and is interested in prices of plumbing and heating.

* * *

At a meeting of the city council in Sarnia, it was decided to submit to the ratepayers at the January elections, by-laws to provide $59,000 for extensions to the water mains and $39,000 for moving the waterworks station to a new site.

* * *

Plumbers at London, Ont., report enough work on hand to keep them working at full time for two months. An acute scarcity of skilled help is being experienced in spite of high wages which are being offered.

* * *

E. H. Russell, who has been a member of the trade for 33 years in London, Ont., leaves this month to make his home in Sydney, Australia, with a brother. Mr. Russell has always taken a very active part in all matters pertaining to the trade and to public health. He has been a member of the Board of Health for many years and was chairman for some time.

ENLARGE PLANT

Whitby.—The Hatch Manufacturing Company, makers of sanitary hardware, are enlarging their plant.

SUIT AGAINST CITY REGARDING PATENT

Toronto.—John Berry, who is suing city for $250,000 for alleged infringement of his patent for purifying water by chlorination, threatens to ask for a judicial investigation into the whole matter. He has taken out an appointment for the examination of Works Commissioner Harris. The city has fifiled a defence, stating that it denies plaintiff exhibited his processes to the city, or that it has been making use of them.

PIPE TOO EXPENSIVE AT PRESENT

Hamilton, Ont.—With prices of cast-iron water pipe ranging from $101 to $117 per ton, members of the board felt that the present time was not opportune to make purchases to complete the laying of mains in the Homeside district. Mayor Booker ventured the opinion that prices would soon decline. As City Engineer E. R. Gray has sufficient pipe to keep his department busy for a few weeks yet, the board decided to return the cheques to the National Iron Corporation, Toronto; United States Cast Iron Company, Buffalo and the Gartshore-Thomson Pipe & Foundry Company, Hamilton. The tender for the latter was the lowest.

OSHAWA WATERWORKS EXTENSION IS PROGRESSING

Oshawa—Seven weeks ago the first sod in connection with a $250,000 waterworks extension program was turned by Robt. McLaughlin, Oshawa's veteran citizen. To-day already 2,000 feet of excavation work has been done while pipe laying is going on apace. A new addition has been built to the pumping station and foundations have been laid for new pumps of the latest type. One of these will be placed in the pumping station and the other in the filtration plant, the latter being an emergency unit.

The contract calls for the construction of 10,000 feet of pipe. The work is expected to be completed in about a year.

The present waterworks system was designed for a population of half of what it is to-day, but so rapid has been the town's growth that the Waterworks Commissioners felt compelled to embark on the present construction program. One reason for the new work was the need for better fire protection. The new extension will meet the needs of a population of more than 30,000. The by-law to raise the $250,000 received the assent of the ratepayers last summer.

MONTREAL PLUMBERS ASK POLICE FORCE TO PROTECT THEM

Montreal.— Owing to the continuance of attacks upon members of the Catholic and National Unions by striking plumbers, the central council of the Catholic and National syndicates sent a deputation to the director of public safety, Lieut.-Col. Gaudet, asking the protection of the police for their members. This was granted and it is further understood that five warrants also have been issued which may lead to arrests at any moment.

The strike of the plumbers here has been in progress for some weeks. The men are asking $1 an hour and an eight-hour day, and they belong to the American Federation of Labor. The master plumbers have concluded agreements with the Catholic and National Unions to supply all the men needed at 70c to 90c an hour and for a ten-hour day.

ST. THOMAS TO INSTALL LARGE NEW GAS MAINS

St. Thomas.—The St. Thomas council decided at a special meeting that it was absolutely necessary that large new gas mains should be laid in the city to give the necessary gas service to the citizens. It is estimated that cost will be between $45,000 and $50,000. The gas service for the past two years has been so poor and uncertain, and so many complaints have been received by the Light, Heat and Power Department, who operate the municipally - owned gas plant, that it was decided some improvement would have to be made to relieve the situation.

Tenders, Contracts Awarded; Construction, Etc.

WATERWORKS AND SEWERAGE EXTENSIONS

Richmond Hill, Ont.—Village Council has given first and second readings to a by-law to raise $95,000 for a waterworks system, the by-law to be voted upon by ratepayers on January 1st, 1921.

London, Ont.—Construction of 6-inch water main costing $15,000 is contemplated by Utilities Commission.

Ottawa, Ont.—City is applying to Legislature for permission to borrow $40,000 for water meters, $100,000 for extensions to water mains, $50,000 for buying and installing hydrants.

Smith's Falls, Ont.—Town plans construction of filtration plant costing $50,000.

Vancouver, B.C.—City has appropriated $100,000, of which $20,000 is for sewer work and $15,000 for waterworks extensions.

WATERWORKS AND SEWERAGE CONTRACTS AWARDED

Matsqui, B.C.—General contract for construction of dykes for drainage and reclamation costing $200,000 for Municipality of Matsqui and Provincial Government, Department of Public Works, is awarded to Northern Construction Co., Carrall St., Vancouver. General contractors will receive tenders for subcontracts in excavating ditches and small laterals of above scheme. Work will be divided into 1-4 mile sections and tenders will be received for any section or whole of ditches and laterals.

Niagara Falls, Ont.—Louis Sacco, 696 Ferry St., has general contract for construction of sewer in one street for city.

Winnipeg, Man.—City awarded general contract for sewer connections to W. G. Young, 218 Fort St.

PLUMBING TENDERS WANTED

Montreal, Que.—A. Mercure, 419 Labrecque Street, the general contractor for erection of bank and apartments costing $50,000 for Bank of Hochelaga, will receive tenders for plumbing and heating.

Lachine, Que.—J. Theoret, 46 14th Avenue, is building a store and residence at cost of $25,000 and will receive tenders for plumbing and heating.

Montreal, Que.—Sauvageau & Bissonette, 178 Stadacona Street, the general contractors for erection of synagogue costing $110,000 at corner of Esplanade and Fairmount, will receive tenders for plumbing and heating.

Ottawa, Ont.—D. Shefler & Sons, 348 St. Urbain Street, Montreal, have general contract for store at Queen and Bank Streets for Service Tobacco Shops, Ltd., H. O. 18 West 18th Street, New York. General contractors will receive tenders for plumbing and heating.

Toronto.—Pair stores and apartments costing $12,000 each for John H. Mahaffy, 36 Fernbank Avenue. Tenders will be received for plumbing and heating.

Calgary, Alta.—Alex. McDonald, architect, 311 8th Ave., is preparing plans of an apartment house to cost $140,000 and will call tenders in April, 1921.

Montreal, Que.—Double residence costing $16,000 for R. A. Outhet, 264 Beaver Hall Hill. T. McLaren, architect, 264 Beaver Hall Hill, will receive tenders for plumbing and heating.

Montreal.—O. Benoit, 751 Earnscliffe Avenue, the general contractor for erection of two residences costing $6,000 each for D. Marcotte, 325 Old Orchard Avenue, will receive tenders for plumbing and heating.

Montreal.—Residence costing $10,000 for E. N. Normandeau, 308 Gatineau Avenue. The general contractor, R. Despaties, 3315 Christophe Colomb, will receive tenders for plumbing, heating and tiling.

Montreal.—O. Archambault, 610 Park Lafontaine, general contractor for erection of residence costing $7,000 for Hudon, Hebert & Co., Ltd., de Bresoles St., will receive tenders for roofing, electrical work, plumbing and heating.

Montreal.—Store costing $35,000 for E. Bissonette, 178 Stadacona Street, general contractors, Sauvegeau & Bissonette, 178 Stadacona Street. Tenders for plumbing and heating will be received by the general contractors.

St. Catharines, Ont.—Residence costing $14,000 for A. E. Jencks, 139 Ontario Street. W. W. Parkes, 49 Queen Street, the general contractor, will let plumbing and heating contracts.

Toronto, Ont.—Hugh Walker, 230 Langley Avenue, has general contract for erection of one pair of residences on Henderson Avenue for Thos. Foster, and will receive tenders for plumbing and heating.

PLUMBING AND HEATING CONTRACTS AWARDED

Sturgeon Falls, Ont.—Provincial Government, Department of Public Works, awarded heating, ventilating and plumbing contracts for school costing $46,000 to McKelvey & Birch Ltd., 69 Brock Ave., Kingston, Ont.

Westmount, Que.—N. Deguire, 52 3rd Ave., Lachine, is awarded plumbing and heating contracts for residence costing $40,000 for P. B. Earle, 149 King Edward Ave.

Toronto.—H. Salamansky, 521 Dundas St. W., has plumbing contract for residence costing $17,000.

Montreal.—Plumbing contracts for residence costing $6,500 for J. Leonard, 334 Garnier St., are placed with Belisle Freres, 233 Chambord St.

Montreal.—Three residences costing $12,000 for Deslauriers & Brunet, 406 Sherbrooke St.; plumbing and heating, Jos. Labelle, 1236 St. James St.

Guelph, Ont.—Eleven residences costing $38,500 for Guelph Housing Commission, MacDonnell St.; plumbing and heating contracts are awarded to Howard & Corvell, Market Sq., and Howard Bros., Market Sq., respectively.

Toronto.—Business block costing $50,000 for Wm. Rowntree, 2885 Dundas St., W.; plumbing, W. Howard, 43 Howland Ave.; heating, Leslie Bros., 1207 Gerrard St. E.

Toronto.—Heating and plumbing contracts, respectively, for alterations and additions to store costing $10,000 for J. Guinane, 9 King St. W., are placed with R. Steen, 3 Grimthorpe Ave., and E. Lee, 1661 Dundas St. W.

Guelph, Ont.—Additional contract for addition and alterations to factory at cost of $33,000 for International Malleable Iron Co., York Road, is: plumbing, Albert W. Smith Co., Cork St.

Kitchener, Ont.—Addition to Walker House, King St., costing $50,000. Plumbing and heating contracts are placed with J. Hainsworth, 14 Queen St. W.

Manotick, Ont.—Store costing $10,000 for Farmers' Co-Operative Society, Manotick. Heating contracts are awarded to Pease Foundry Co., Lyon St. Ottawa.

Montreal, Que.—Additional contracts for garage for N. J. Lavoie, 792 Berri St.; plumbing and heating, A. Brunnette, 996 City Hall Ave.

Montreal.—Store costing $15,000 for H. Langtin, 347 Boyer St. Additional contracts: plumbing and heating, Belisle Freres Ltd., 233 Chambord St.

Toronto.—Additional contracts for bank costing $20,000 for Imperial Bank at Queen and Carlaw, are: Plumbing, Fiddes-Hogarth Ltd., 122 King St. E.; heating, Pease Foundry Co., Ltd., 118 King St. E.

Star City, Sask.—Theatre costing $10,000 for Stanley Saddler. Hale & Stanton have heating contract.

Montreal.—Warehouse costing $70,000 for Laporte Martin, Ltee., 594 St. Paul St. Additional contract: Plumbing and heating, J. A. Francoeur & Cie., 538 Fabre St.

Montreal, West Que.—Additional contracts for erection of apartment house costing $150,000 for John Dominique, 223 Marcel Ave., are: Plumbing and heating, Lavigueur & Menard, 2483 St. Lawrence Blvd.

Ottawa, Ont.—Plumbing and heating contracts for theatre costing $350,000 for Famous Players Canadian Corp., Ltd., Temple Building, Toronto, are placed with W. G. Edge Ltd., 142 Bank St., Ottawa.

Additional contracts for poultry office bldg., (Experimental Farm) costing $27,740 for Dominion Government, Department Public Works, are: Plumbing and heating, W. G. Edge Ltd., Bank St.

Dominion, N.S.—H. G. Hagen & Co., Sydney, N.S., have general contract for heating systems for town hall, public and separate schools.

Regina, Sask.—Vaudeville theatre costing $250,000 for Famous Players Canadian Corp. Ltd., Toronto, Ont Additional contracts: Plumbing and heating, Green & Lister, Ltd., 237 Fort St., Winnipeg.

Dominion, N.S.—Plumbing and heating contracts for church costing $25,000 for R. C. Episcopal Corp. are placed with H. G. Hagen & Co., Ltd., Sydney.

St. Catharines.—Heating contract for Sunday School and gymnasium costing about $35,000 for First Presbyterian Church, Church Street, is awarded to S. P. Gourlay, King Street.

Granby, Que.—Plumbing and heating contracts for convent costing $135,000 for Sisters of Presentation, St. Hyacinthe, Que., are placed with J. A. Francoeur & Cie., 538 Fabre St., Montreal.

Montreal, Que.—Plumbing and heating contracts for extension to factory costing $15,000 for Crane, Limited, 1280 St. Patrick Street, are awarded to W. G. Edge Co., 116 Craig St. W.

Montreal.—Additional contracts for factory costing $34,000 for Atlas Paper Box Co., Marie Anne St., are: plumbing and heating, W. G. Edge Co., 116 Craig Street West.

Montreal.—Alterations to factory costing $40,000 for National Drug & Chemical Co., 34 St. Gabriel Street. Plumbing contracts are placed with Hart & Buchanan, 759 St. Antoine Street.

Montreal.—Additional contracts for garage costing $60,000 for Mountain Street Garage Co., Mountain Street, are: plumbing and heating, Conroy Bros., 291 Centre Street.

Sydney Mines, N.S.—Plumbing and heating contracts for repairs to store for British Canadian Co-operative Society, Limited, are placed with Murdock Matheson, Pierce Street, North Sydney, N.S.

Oshawa, Ont.—Heating and plumbing contracts for warehouse on Mechanic Street costing $10,000 for Thos. Kinnear & Co., 49 Front Street East, Toronto, are awarded to W. Lambert, Bagot Street, Oshawa, and W. D. Muckler, Simcoe St. N., Oshawa, respectively.

Toronto, Ont.—Additional contracts for two stores and apartments costing $15,000 each for W. W. Hiltz, 739 Broadview Avenue, are: plumbing, J. W. Barrett, 67 Bertmount Road; hot water heating, George Mathewson, 734 Queen Street East.

Toronto.—Addition and alterations to building for bank and apartments costing $5,000 for Imperial Bank. J. W. Oram. 836 Yonge Street, has heating and plumbing contracts.

Flesherton, Ont.—W. E. Large, Eugenia, Ont., is erecting a bungalow costing $6,000 for W. A. Armstrong. Additional contracts are: plumbing and heating, Dougall McKillop.

Hawkesbury, Ont. — Plumbing and heating contracts for residence costing $10,000 for P. J. Murer, are placed with John Tweedle, 163 Lagauchetiere Street West, Montreal.

North Bay, Ont.—Plumbing and heating contracts for residence costing $32,000 for French R. C. Congregation are placed with J. M. McPherson, 226 Fraser Street.

Windsor, Ont.—E. J. Baby, 437 London Street West, is building a double residence costing $6,000 and awarded plumbing and heating contracts to Windsor Hardware Co., 147 Sandwich Street East.

Victoria, B.C.—Residence costing $12,000 for E. B. Halsall, 526 Beach Drive. Heating and plumbing contracts are awarded to W. R. Menzies & Co., 823 Cormorant Street, and Harkness & Son, 919 Pandora Avenue, respectively.

CONSTRUCTION AND RENOVATION

Chauvin, Alta.—C. G. Kreglan, Chauvin, will build a meat market on Main St.

* * *

Hamilton, Ont.—F. E. Paling, Kenilworth Ave., is erecting a dance hall costing $4,000 on Kenilworth Ave.

* * *

Langley Prairie, B.C.—Turner Bros., Main St., are erecting an hotel at an estimated cost of $30,000.

* * *

New Westminster, B.C.—City Engineer has plans and will receive tenders, no closing date set, for erection of a public market estimated to cost $44,000.

* * *

Owen Sound, Ont.—New tenders will be called in the spring for erection of addition to foundry costing $25,000 for Corbet Foundry & Machine Co., 1064 1st Ave. W. Forrester & Clark, architects, 1076 1st Ave. W.

* * *

Regina, Sask.—Elite Cafe Co., Ltd., 1815 Scarth St., owns adjacent building to the premises which it now occupies and it is planned to make alterations to the building in order to give more space for cafe and also to include tea room and confectionery. Present building will be raised in height to allow for construction of balcony. Work is estimated to cost $50,000.

* * *

Vancouver, B.C.—Erection of a feather products factory costing $25,000 is planned by Mudie, Ltd., London, Liverpool and Australia.

* * *

Montreal.—Grothe, Munn & Shea, Ltd., 6 Cuthbert St., general contractors for erection of a garage costing $60,000 for Mountain Street Garage Co., Mountain Street, will receive tenders for plumbing and heating.

* * *

Toronto.—Coneybeare Bros., 56 1-2 Danforth Ave., have general contract for erection of two stores and apartments costing $75,000 for Charal Bros., 4 Garnock Ave. General contractors will receive tenders for plumbing and heating.

* * *

Toronto.—C. E. Ring & Co., 18 Toronto St., the general contractors for erection of a duplex residence costing $19,000 for Mrs. O. Taylor, c/o H. R. Watson, architect, 907 Excelsior Life Building, will receive tenders for plumbing.

* * *

Victoria, B.C.—S. Maclure, architect, 404 Union Bank Building, is preparing plans of residence to cost $20,000 for Commander Noble, R.N., Victoria. Tenders will be called shortly.

* * *

Alameda, Sask.—Town will not proceed any further this year with erection of a skating rink costing $6,500 owing to delays in issuance of necessary debentures. A by-law will be voted on in December and construction will probably be commenced during the summer.

* * *

Cabri, Sask.—Tenders will be called in March, 1921, for erection of an hospital costing $60,000 for Hospital Board. R. N. Thompson, architect, Bank of Nova Scotia Building, Saskatoon.

* * *

Carievale, Sask.—S. Southcombe, secretary-treasurer. Thunder Creek S. D. No. 262, will receive tenders until Dec. 15th for erection of a school estimated to cost $7,000. Plans with Robert Young, Carnduff, Sask.

* * *

Fairville, N.B.—Tenders will be called shortly for erection of fire hall costing $10,000. Town council is in the market for fire apparatus and equipment.

* * *

Fort William, Ont.—Tenders will be called early in spring for erection of a school estimated to cost $75,000 for Board of Education.

* * *

Harding, Man.—E. D. Tutte, architect, 405 McArthur Building, Winnipeg, is preparing plans of school for Harding Consolidated S.D.

* * *

High River, Alta.—By-law passed authorizing the construction of a municipal hospital.

* * *

Lethbridge, Alta.—Whiddington & Fry, architects, have prepared sketch plans for addition to school to cost $25,000 for Lethbridge P. P. School Board.

* * *

Moosomin, Sask.—By-law authorizing construction of an hospital costing $70,000 for Hospital Board was not submitted this fall, poor crops being given as the reason. It is expected that the ratepayers will vote on this question in the spring.

* * *

Ottawa, Ont.—In connection with rebuilding St. Anne's Hall on St. Patrick St., R. C. Corp. will erect a temporary structure at present over furnace room and restore heating for the Church which was connected to hall.

* * *

Ottawa.—Erection of addition to hospital at cost of $300,000 is planned by Grey Nuns, Water St. Campaign funds will shortly be inaugurated.

Continued on Page 38

A Merry Christmas

Now that 1920 is nearly gone, our thoughts turn to the friends and customers of this past year, and it is with gladness we realize that just a little more prestige has been built for Port Hope Sanitary Fixtures, a few more friends made and public confidence in our service and policies increased. With thanks for the loyalty and faith of friends we wish them a New Year full of gratified wishes and ambitions.

A Happy New Year

Half the

This is true of the United States according to statistics, and conditions in Canada can hardly be better.

More than that a great percentage of the homes that have bathrooms are not equipped with modern Sanitary Plumbing.

Actual investigations show that 96 per cent. of the farmers own automobiles, yet only half the homes in the whole country have bathrooms. These figures are astonishing, particularly as the outlay for an automobile is considerably more than the cost of a bathroom.

mes Lack Bathrooms

It is quite obvious that sanitation is vital to health and proper living, which are more important than automobiles, and if the real benefits of sanitary equipment are brought to the attention of home owners forcibly, a remarkable change in sanitary conditions throughout the whole country will result.

This task can be accomplished only through the combined efforts of all who are interested in the plumbing business, including Manufacturers, Jobbers and Master Plumbers. If the gospel of modern plumbing is spread by plumbing men wherever they are and wherever they go, sanitary conditions can soon be made a common topic. Printed circulars mailed out by plumbers in their districts, exploiting the benefits of more frequent bathing, will cause favorable discussion among the public that will tend toward new installations and the replacement of old equipment.

Propaganda of this sort will soon make the people realize the necessity of Modern Plumbing conveniences, and it will result in prosperity for the Plumbing Trade beyond expectations as well as help to promote better living standards.

Port Hope Sanitary Mfg. Company, Limited

Factory:
PORT HOPE, ONTARIO

Head Office:
ROYAL BANK BUILDING, TORONTO

TORONTO SHOW ROOMS
119 King Street East

WINNIPEG OFFICE
405 Tribune Bldg.

MONTREAL SHOW ROOMS
234 Beaver Hall Hill

HALIFAX OFFICE: McCurdy Building, Hollis Street

Uncovered Furnace Pipes Lose Less Heat

Important Tests Show That Use of Thin Sheets of Asbestos Paper on Bright Tin Heat Pipes Results in Waste of Heat—Heat Loss 39 Per Cent. Greater With One Thickness of Paper Than Without —Double Wall Tin Pipes Have Good Merit

(Continued from previous issue)

The attempt was made in the steam drum tests to determine the effect upon the heat loss of having the drum partly enclosed so that free circulation of the air about the drum would be prevented. The experiment simulated the effect of running leader pipes between joists.

The argument has been advanced that if bright tin pipes were used without covering, they would soon become fouled with dirt and dust and so rendered less efficient heat carriers than asbestos paper covered pipes. The fallacy of this argument is revealed by tests. In these tests fine ash dust was sifted on the test drums, one of bare bright tin and the other asbestos paper covered. The dust was more than one-sixteenth inch deep on top of the drums. The results indicate that the bare tin suffered a loss of 11 per cent. in efficiency whereas the asbestos paper surface improved 2.4 per cent. There still remained, however, a difference of 25 per cent. in favor of the bare tin pipe.

Thickness of Insulation Increased

In order to demonstrate further the inefficacy of thin layers of asbestos paper as a heat insulator, tests were run in which the number of thicknesses of paper was increased until the heat loss became less than the loss through a bare bright tin specimen. Eight thicknesses of the 12-pound paper were applied before the desired result was obtained. In these tests the moistened paper was wrapped tightly and shrunk on the drums so that only a small quantity of air was entrapped between the successive layers of paper. The total thickness of paper was two-tenths of an inch. The impractical features of such a method of insulating are of course evident. The use of thin layers of asbestos paper on bright tin pipes must be abandoned if the best results are to be obtained in furnace heating.

Other Materials Tested

Other materials of better heat insulating value than the bare tin were tested. Numbers 3, 6, 10, 12, 15, 18 and 21, all show values which indicate that a large saving would be effected by their use. Some of them are expensive and not easy of application, but good selections may be made. The air-cell combinations Nos. 3 and 6 are excellent insulators, are easy to fit to basement leaders, are not expensive, and the latter, in particular, is not bulky.

The double wall tin pipes Nos. 10 and 12 are very efficient insulators and are easy to construct and to install. Other tests are in progress which are expected to establish still further the merits of this type.

Galvanized Iron Specimens

The tests on galvanized iron specimens brought out the fact that the heat loss through this material is not greater than through bright tin of the same gage. This low heat radiating property is an argument in favor of the galvanized iron leader pipe. Nos. 18 and 21 are good insulations for the exterior of furnace casings, the heat loss through the latter being almost negligible. No. 21 is very easily applied.

Effect of Lacquers

The tests on drum No. 11 were made to determine the effect of transparent applications on the tin surface. Bakelite lacquer was used. The result was a slight increase in the heat loss. It was thought that the use of the lacquer would be justified in practice by its rust preventing qualities, but specimens exposed to steam laden air for long periods show no advantage for the protective coating.

Tests Nos. 20 and 23 were made for the purpose of ascertaining the effect of color upon the heat radiating value of a surface. Applications of white calcimine were made on a drum which was tested; then a coat of dull black calcimine was added and the drum re-tested; a final coating of white calcimine was applied and the drum again tested. The alternate tests with white calcimine checked very closely, proving that the additional thickness of the calcimine was not sufficient to have any bearing on the results. Beyond demonstrating the superior radiating value of a dark surface, the tests have little significance.

Painting Over Asbestos Paper

Specimens Nos. 4 and 5 demonstrated the uneconomical effect due to increased heat loss of any kind of oil paint applications on heat pipes. A comparison showed the enormous increase in heat loss caused by painting bright tin heat-pipes, and a comparison also showed the similar wasteful effect of painting over the asbestos paper covering. However, use of paint on asbestos paper has in its favor the moisture-proofing effect of the paint.

Corroborative Tests

In order to show the connection between the work done on the steam drums already described and conditions obtaining in a warm-air system, the following account of experiments conducted on the auxiliary furnace plant is given. In these experiments, the weight of air flowing up the pipe was determined by the use of the steam-air meter which supplied the heat. Half way along the ten-foot length of the ten-inch leader pipe was located a traversing device which made it possible to get temperatures at any point across the pipe diameter by intervals of one-hundredth of an inch.

The use of thermometers for accurate temperature measurements in an air stream is not satisfactory. Thermometer readings will not be in agreement with thermocouple readings though both are suspended in close proximity in the same stream of moving air. For this reason thermocouples were used throughout these tests.

Curves shown for both the asbestos paper-covered pipe and the bare pipe demonstrated the heat-radiating value of the asbestos paper. Not only the air temperature but the surface metal temperature beneath the paper was lower in the case of the covered pipe, this fact indicating that the tin is conducting the heat to the asbestos covering which in turn radiates it more rapidly than does uncovered tin. Very exact means were taken to determine the temperature of the film of air in contact with the inner surface of the pipe.

In measuring the temperature of the pipe surface, it was found that, whereas the air in the pipe dropped in temperature, the pipe itself showed a measurable increase in temperature away from the furnace. This slight increase occurred when the pipe was covered as well as when bare. As this increase amounted to only about 3 degrees and was proportional to the length of pipe, it was considered permissible to use the temperature half way up the leader as the mean metal temperature.

Conclusion

Enough tests have been made on this apparatus to entirely corroborate the results obtained on the steam drums, and additional tests are in progress in which more exacting methods are employed.

Provincial Government, Department of Public Works, Victoria, has plans and will receive tenders, no closing date, for remodelment and alterations to public building. When work is completed building will be turned over to Vancouver School Board which plans to spend about $10,000 in equipment and machinery for manual training and technical classes.

Plumbers' Bill Not a "Shining Evidence of Inflation"

An Outsider's Opinion on Value of Plumbing work and Steps Which Plumbers Should Take to Establish Themselves on the Plane Where They Belong—Public Pays Less for Plumbing Than for Most Other Commodities

"YOUR charges are not excessive compared with other necessities. Your business operations do not furnish your industry any such profits as have been enjoyed by other business enterprises providing other equipment. Yet you bring to the home much comfort, health, cleanliness and even elegance, at a cost one-tenth as great as our forefathers would have paid. Your work renders a higher quality of service than do other furnishings in the home."

Such statements were emphasized by a University professor in a lecture to the plumbing and heating fraternity.

In dealing with the primary ideas of profit, overhead expense, etc., the Professor praised the work being done, and the benefits accruing to business men who took advantage of the progessive ideas furnished by the National Trade Extension Bureau of the plumbing and heating industry.

He said in part:—"The plumbing and heating contractor has been so frequently made the subject of jest, cartoon and adverse criticism that the impression has been left in the mind of the average customer that a plumber's bill is a shining example of inflation, and of excessive and exorbitant charges. It is therefore really imperative that you have at your tongue's end sufficient real facts to more than combat any critic who would tear down your business, who would make you appear as a highwayman to your friends and the public, and to correct the erroneous thought which has developed almost into a prejudice against your craft.

Progress in Fifty Years

"Many people fail to give due consideration to the importance and magnitude of the role you are playing in providing for the comforts of life and in safeguarding and protecting health. They forget that fifty years ago both room and radiator heating were only in the homes of the wealthy, and that these were of the crudest types imaginable. They fail to appreciate that you are directly responsible for an extensive and general improvement.

"It is an undisputed fact that the sanitary equipment of the home renders a life-long service to all members of the household, and that this service cannot be dispensed with, without materially affecting health. The average household furnishings contribute to style, display and comfort, but they are only short-lived and do not measure up with your disease-preventional service and comfort-giving material and workmanship.

"Every plumbing and heating contractor should instil in the minds of his customers the nature of the service, the period of service, and the cost and maintenance of his equipment and work in every home and public building. Any thinking person will readily admit that sanitary plumbing and efficient heating and ventilating return the owner far more return on his investment than any other equipment he can install.

"Notwithstanding all the benefits and blessings you bestow upon mankind these are not appreciated as they should be. Your industry has not amassed wealth as has the banker, the doctor and innumerable other lines of commercial endeavor which have rendered the buying public no greater service than has the heating and plumbing contractor.

Profits

"This brings me to the question of profits, and it will be well to briefly discuss just what profits consist of.

"Profit is not interest on an investment. Profit is not a salary received for managing a business enterprise. Profit is not the money made working with tools, or acting as foreman or superintendent. All of these are items of earnings which the proprietor of an establishment should properly receive as manager or worker in his business.

"Profit can only be the owner's final net return for the risks taken in providing for the wants of his customers and the community. Profit is not forthcoming until money is made over and above all the recognized costs of operation."

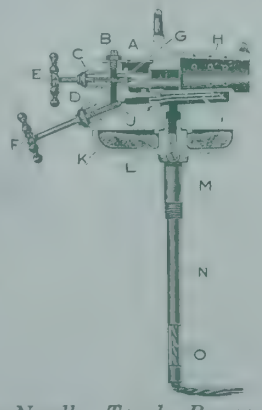
The lecturer still further emphasized the fact that the public pays less for plumbing and heating service than they do in comparison for hats, shoes, and other commodities. He quoted numerous statistics which proved beyond a shadow of a doubt that his contentions were absolutely correct.

NEW PLUMBING GOODS

C. & L. NEW DOUBLE-NEEDLE TORCHES

An important improvement in the construction of gasoline blow torches has been announced by the Clayton & Lambert Mfg. Co., Detroit, Mich., in a double needle point burner.

The company claim that these double needle burners will produce more heat units than any other burner on the market and will burn lower grades of gasoline or kerosene, or a mixture of both fuels in any proportion, and that they are as near "fool-proof" as can be made.



Double-Needle Torch Burner Construction.

The Clayton & Lambert Mfg. Company's torches, fitted with double needles, are made in three sizes: quart, pint, and two-quart capacity, both with and without hook and support on the burner for holding a soldering copper. These six styles are designed to suit the various needs of the mechanic and are for use indoors or for outside work under the most severe conditions of wind and weather. They are described briefly as follows:

The burner is claimed to be of substantial construction with improved generator involving new and up-to-the-minute ideas in the combustion of fuel. Two needles control the supply of fuel which enters the combustion chamber and enable the user to secure the size and quality of flame which is best suited to the work to be done. The upper needle cleans the orifice and cannot enlarge it, and the lower needle is a blunt point shut-off needle, and it is, therefore, impossible to damage the burner.

A new illustrated catalogue showing this company's torches, fire pots and braziers, and their Bulletin No. 4 showing crude oil burning machines will be mailed on request.

NEW CANADIAN PATENTS

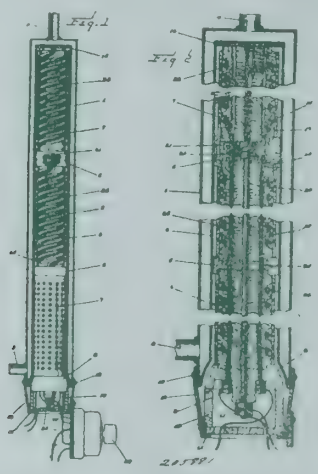
(Issued for Plumbing and Heating Goods)

NO. 205881. ELECTRIC WATER HEATER

Frederick W. Moffat, Weston, Ontario, Canada.

In an electric heating element, the combination of a plurality of cylindrical resistance wire support sections of insulating material fitted end to end, resistance wire carried thereby, a plurality of suitably supported terminals at one end to which the resistance wire is connected, connections between the terminals and the wires, the connections extending through passages in the body of the support, and a separate cylindrical protecting shell of insulating material for each section.

In an electric heating element, the combination of a plurality of spirally grooved cylindrical resistance wire support sections of insulating material fitted end to end, coiled resistance wire wound on said support, a coupling member of insulating material fitted between adjacent support sections, holes being formed in said spacing member for the passage of the wire coils from one support section to the other.

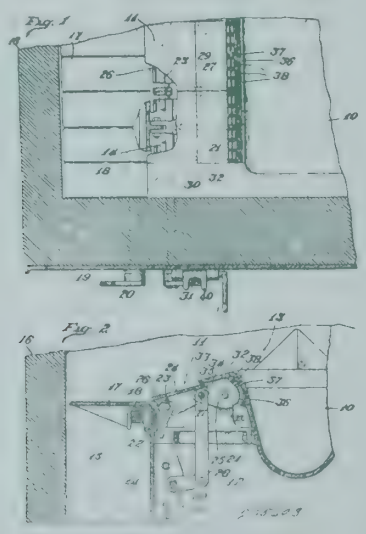


NO. 205603. UNDERFEED FURNACE

Arthur H. Blackburn, Downers Grove, and Frank E. Fleming, Chicago.

In an underfeed furnace, the combination with a retort, and ash-disposal means laterally spaced from said retort, of an intervening side floor structure comprising plates respectively pivoted adjacent each the retort and the ash disposal means, and means for raising and lowering the proximate free edges of said plates.

In an underfeed furnace, the combination with the retort and ash disposal means laterally spaced from said retort, of an inner floor section pivoted adjacent the retort and providing a supporting surface and a skirt, said skirt shaped to maintain substantial approximation of contact with the retort as the section is rocked, a second floor section pivoted adjacent the ash disposal means and extending inward to an approximation of contact with the free edge of the first said section, and means for raising and lowering the adjoining edges of said sections in unison.



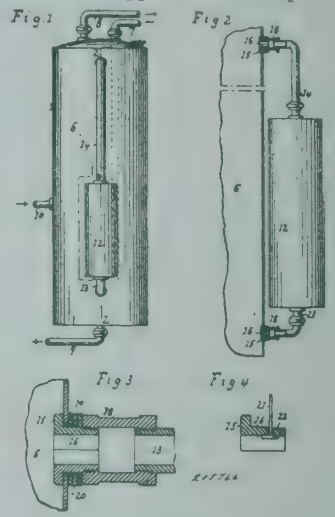
NO. 205766. PIPE FITTING

Herman Saucke, New York City, New York.

In a pipe fitting, the combination with a receptacle inaccessible from the exterior provided with an aperture, of a sectional flange nipple having a stem projecting from the aperture, said flange forming an annular member to co-act with the inner wall of the receptacle and a coupling engaging the stem for locking the nipple to the receptacle.

In a pipe fitting, the combination with a boiler inaccessible from the exterior provided with an aperture, of a two section flanged nipple having a threaded stem projecting from the aperture, each flange being semi-circular to engage the inner wall of the boiler, and a coupling engaging the threaded stem for fastening the nipple to the boiler.

The method of fitting a pipe to a boiler manually inaccessible from the exterior thereof, which consists in reaming a hole in the boiler, wholly inserting a sectional annular flanged nipple into the hole, drawing the nipple to project from the hole with the flange inside, and locking the nipple to the boiler.

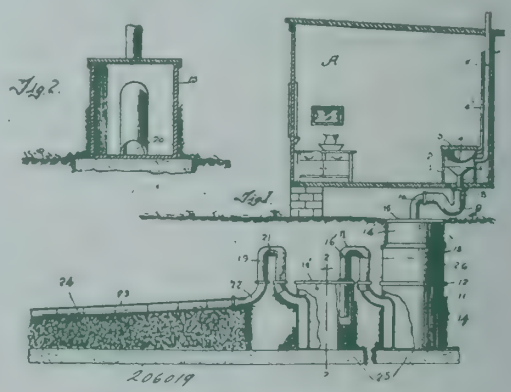


NO. 206019. SEWAGE SYSTEM

Christopher F. Cullen, Mobile, Alabama

In a sewage disposal system, a septic tank and an outlet pipe on a lower level than the upper end of the tank, in combination with an intermediate siphon-shaped connection extending to the level of the upper portion of the tank and communicating with the tank below said level.

In a sewage disposal system, the combination of a septic tank having an outlet leading through the side thereof, and a lower tank having an outlet leading through the side thereof with two inverted U-shaped ducts leading respectively from said outlets, the duct leading from the outlet of the first-named tank leading to the second-named tank, and both ducts extending to the level of the upper portion of the first-named tank.



Market Conditions and Tendencies

STATEMENTS REGARDING SUPPLIES AND TREND OF PRICES

MARKETS AT A GLANCE

THERE are a few price changes since the last issue appeared which affect the plumbing and steam-fitting trade.

A further recession in the primary markets has caused lower quotations to be made on lead products, and lead traps and bends, lead pipe and sheets are all reduced in price. Solders are also lower.

New discounts are quoted on cast iron pipe fittings and show a reduction. Bar iron and steel show easier prices, and black sheets and plates have been shaded downwards. Galvanized sheets promise to be lower if stocks were in better shape, but though improved, there is still a certain shortage in these lines.

In spite of the lateness of the season there is still a fair amount of business reported in enamelled wares which show an easier tendency.

Ingot metals are showing a little more activity and tin and spelter have recovered somewhat from recent decline.

MONTREAL

MONTREAL, Dec. 13—Business is a little quieter in plumbing lines, although there is a good demand for many lines despite the lateness of the season.

Prices are revised on enamelled ware and some higher quotations are the result. Radiators are unchanged and are quieter. Range boilers are moving more slowly.

Lead products and solders are lowered and quotations show further reductions. Iron and steel are more active and are a trifle lower.

Pipe and fittings are showing lessened demand and some sizes of pipe are still scarce. Scrap materials are very dull and quotations are reduced. Canada plate is coming in better now, but demand is lighter.

Little Movement in Conductor Pipe

Montreal.

CONDUCTOR PIPE.—There is practically no demand for conductor pipe owing to the season of the year. Prices are unchanged, however.

PIPE (Conductor)
Plain

2 in., in 10-ft. lengths, list	8 00
3 in., in 10-ft. lengths, list	9 70
4 in., in 10-ft. lengths, list	12 80
5 in., in 10-ft. lengths, list	17 50
6 in., in 10-ft. lengths, list	21 30

Add 25% to the above list.

Slight Reduction in Price of Corrugated Iron

Montreal.

CORRUGATED IRON.—Prices have declined on 26 and 28 gauge, with little business offering. Manufacturers and jobbers have good stock and the indications are that there will be further declines in the near future.

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	12 00
No. 26 gauge	12 75
No. 24 gauge	18 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Soil Pipe Still Holding Up

Montreal.

SOIL PIPE.—The demand for soil pipe continues steady and jobbers report that business is very fair at this season of the year. Prices remain unchanged.

Soil Pipe (medium and extra heavy), net.
Do., 2, 3, 5, and 6-in., add 5% to list.
Do., 8 inch, add 20% to list.
Fittings, 4 in., net list.
Do., 2 to 6 in., 20%.
8 inch pipe and fittings, add 20% to the list.

Steady Demand For Oakum

Montreal.

OAKUM.—The demand for oakum is steady and seasonable. Prices remain firm at $4.75 per 50 pound bale.

Fittings Reported Much Easier

Montreal.

FITTINGS.—While prices are remaining steady on fittings, the demand is falling off, which is expected at this time of the year, and the mills are catching up with the demand. They are, however, still behind with orders.

PIPE FITTINGS

Cast iron fittings	Plus 7½%
Plugs	Less 18%
Bushings	Less 18%
Unions, black	35%
Do., galv.	40%
Dart unions, ¼-in. to 2-in.	Plus 35% and 10%
Do., 2½-in. and larger	8%
Nipples, blk., up to 4-in.,	50%
Do., gal., up to 4-in.	40%
Do., 4½-in. and larger	50%
Do., running thread, 4-in. and under	30%
Couplings, 4 in. and under	20%
Couplings, 4½" and larger	Net list

MALLEABLE FITTINGS

Class A	0 62	0 78
Class B	0 26½	0 37½
Class C	0 17½	0 26½

Cotton Waste Moving Freely

Montreal.

COTTON WASTE.—There have been no changes in prices on cotton waste, but undoubtedly there will be readjustments after the first of the new year, when mill contracts for raw materials are renewed. Business is reported by the jobbers as being very satisfactory.

WASTE

Cream, Polishing	0 26

WHITE

XXX	0 23
XX	0 21½
X	0 20
Japanese	0 17
XX, grad.	0 22½
XLCR	0 20
X Empire	0 18½
X Press	0 16½
XC	0 18½

COLORED

No. 1	0 18
No. 7	0 16
No. 1A	0 14½
No. 1B	0 12½
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0 10

Above lines subject to trade discount for quantity.

Compression Goods Reported Dull

Montreal.

VALVES AND COCKS.—Trade is reported as being very quiet, even for this

season of the year, without prospects for any improvement in the immediate future. Prices remain unchanged and are firm.

Compression work, standard, 3" and smaller	less 15%
Do., 3½" and larger	plus 25%
Add 50% to the above list.	
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Prices Firm on Range Boilers

Montreal.

RANGE BOILERS.—Prices remain unchanged with little business offering. Stocks are reported to be in good shape.

Range Boilers—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	31 00	10 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Radiator Prices Remain Firm

Montreal.

RADIATORS.—Sales are dropping off and back orders are being filled now, and not a great deal of new business coming in. Conditions are such that there is little prospect for declines, as such advances that have been made have only taken care of the actual rising costs of production. Bookings are slow in coming in for spring delivery, and prices are firm.

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 23 in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Discount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

Little Demand For Closets

Montreal.

CLOSETS. — There have been no changes in prices on closets. Business is reported as dull, but this is expected at this season of the year, and many are now engaged in stock taking.

Closet, standard outfit	$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enameled iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, less seat	19 00
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Enamelled Ware Is Further Revised

Montreal.

ENAMELLED WARE. — There have been further revisions in the prices of enamelled ware and these are upward. These changes are stated to be the result of investigation into costs of production, and although manufacturers were reluctant to advance prices at this time, yet they felt there was no other course open.

Sinks, roll rim, 18x30 in.			19 55
Sinks, flat rim—	1 only	2 only	3 only
16 x 24	$6 38	$6 29	$6 20
18 x 30	7 40	7 31	7 22
20 x 30	8 41	8 33	8 25
Bath tubs, roll rim, 4, 4½, 5 feet, 34 to 30 in. wide			$43 69
Bath tubs, 5½ feet			48 54
Lavatories—			
17x19" Apron P130 or P4045			13 00
18x21" Apron P154 or P3845 or P3847			20 06
18x21" Apron P169 or P4205			14 66
18x21" Roll Rim P197, P199 or P4655-6			13 09
17x19" Roll Rim, P241 or P4345			10 71

Trade Quieter in Canada Plates

Montreal.

CANADA PLATES.—There has been a big shortage in Canada Plates this year, and buyers have had to cut down any big sheets they could get, but the demand is now considerably lessened as the season is practically over as far as manufacturers are concerned. There will be plenty available for next season's trade, but buyers are not particularly interested at present, except for small inquiries which may arise occasionally.

Prices on Lead Products Are Revised

Montreal.

LEAD PRODUCTS.—Owing to the pig lead situation further reductions in prices are recorded on lead products. There are, however, indications that prices will be rather firm now for immediate deliveries, and future deliveries are being quoted at slightly higher prices. Business at present is quiet, but buyers are starting to purchase again.

Lead pipe, per 100 lbs.	14 50
Lead waste, per 100 lbs.	15 50
Note—Lead pipe is subject to a discount of 10%	
Lead traps and bends	Net list
Lead wool, lb.	0 14
Lead sheets, 2½ lbs.	0 11
Lead sheets, 3 to 3½ lbs. sq. ft., lb	0 10½
Do., 4 to 8 lbs., sq. ft.	0 09½
Cut sheets ¼c lb. extra and cut sheets to size, ¾c lb. extra.	
Solder, guaranteed, lb.	0 30½
Do., strictly, lb.	0 28½
Do., commercial, lb.	0 25½
Do., wiping, lb.	0 25¼
Wire solder—	
40-60	0 31¾
45-55	0 34
50-50	0 36
Zinc sheets, casks	0 16½
Do., broken lots	0 17½

Some Pipe Sizes Still Scarce

Montreal.

PIPE.—The jobbers report that there has been no improvement in the pipe situation, and that they are unable to secure pipe, particularly galvanized, to fill their orders. There have been no changes in prices.

LIST NO. 46
Standard Buttweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
⅛	$ 6.50	$ 8.50	$.....	$.....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8 63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....
4	87.05	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel Blk.	Steel Galv.	Gen. Wrought Iron Blk.	Gen. Wrought Iron Galv.
2	$32.01	$ 38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2 66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4 39	4.39	5.21

Black Sheets Down; Demand Light

Montreal.

SHEETS AND PLATES.—There is not very much change, though if anything there is a tendency to slightly lower prices. Buyers are holding off and cannot be induced to buy even at any recession in prices. The market will probably remain quiet until after the first of the year anyway.

BLACK SHEETS—	
10 gauge	9 00
12 gauge	9 25
14 gauge	9 50
16 gauge	9 50
18-20 gauge	10 40
22-24 gauge	10 50
26 gauge	10 55
28 gauge	10 70
GALVANIZED SHEETS—	
U.S. Standard—	
10¾ gauge	13 75
28 gauge	13 25
26 gauge	13 00
22 to 24 gauge	12 85
20 gauge	12 65
18 gauge	12 65
16 gauge	12 50
English Standard—	
28 gauge	13 50 / 13 00
26 gauge	13 25 / 12 95
24 gauge	12 65 / 12 35
22 gauge	12 30 / 11 90
18 and 20 gauge	11 60 / 11 75

NOTE.—These prices are for full bundles, an extra charge of 25c to 35c per 100 lbs. is made for broken lots. These quotations are nominal.

Iron and Steel More Active

Montreal.

IRON AND STEEL.—There is no perceptible change in the iron and steel situation, in so far as immediate deliveries are concerned. The mills are, however, expecting to catch up with their orders early in the New Year and there are indications that there will be adjustments in prices then. In the meantime prices are remaining firm, as follows:

IRON AND STEEL

Iron finish machinery steel	$4 95
Norway iron	15 00

Single reeled machinery steel	6 80
Spring steel	6 00
Sleigh shoe steel	5 30
Tire steel	5 50
Toe calk steel	6 20
Band steel	5 80
Harrow tooth steel	5 45
Mining tool steel, per lb.	0 24½
Black diamond tool steel, per lb.	0 24½
Black diamond cast steel, per lb.	0 24½
Common bar iron	4 95
Refined iron, per 100 lbs.	5 65
Mild steel	5 30

3-16 and thinner flats in iron or steel take extra 50c per 100 lbs. over base and regular extra.

Scrap Market Reported Dull

Montreal.

OLD SCRAP.—Business on old scrap; brass, copper, lead, iron, etc., is extremely dull. Prices have declined again without creating any demand, and it is anticipated that this lull will prevail for some time.

Dealer's Buying Prices		
Automobile tires	0 75	1 25
Yellow brass	0 07	0 08
Red brass	....	0 12½
Light brass	4 50	5 50
Scrap zinc	....	0 05¼
Lead, heavy	4 00	5 00
Lead, tea	2 50	2 75
Light copper	9 00	9 50
Heavy copper	11 50	12 50
Wrought iron, R. Rd., No. 1, per gr. ton	23 50	24 50
Malleable scrap (ton)	....	17 00
Pipe scrap (ton)	....	12 00
Stove plate, per ton	24 00	25 00
Heavy melting steel	18 00	19 00
No. 2 busheling	10 00	12 00
Boiler plate	....	16 00

Metal Market Registers Some Improvement

Montreal.

INGOT METALS.—The general tone of the metal market is better. While there are no particular advances to record there is certainly a slight improvement. There is a feeling in some lines that the bottom has been reached, but it is not expected that this improvement will show increased buying yet.

TIN.—Has had a sharp advance in London, and appears to be quite strong, although the United States market is still depressed, but will undoubtedly improve shortly. Price is now quoted at 43½ to 45 cents a pound.

COPPER.—There has been a slight improvement, and while there is no great change, the sentiment is better, and the low level has apparently been reached. Electro is now quoted at 19¼ cents and casting at 19 cents per pound.

LEAD.—Is the one metal that is still lagging behind, and it is a little doubtful if we have seen the low point. Production is heavy and prices are still too much above pre-war level, and we expect to see prices slightly lower still. The price is still quoted at 7½ cents.

SPELTER is quite strong in the U. S. with a sharp advance; this is also reflected in London. The market here, of course, is based on London. Price of 8¼ cents is being quoted.

ANTIMONY. — The market is still very depressed and business quiet. It is now quoted at 8 cents to 8¼ cents per pound.

ALUMINUM is still inactive and dull and continues at 34c to 35c per lb.

TORONTO

TORONTO, Dec. 13.—Among the declines noted since the last issue of Sanitary Engineer are further reductions in lead and zinc products, bar iron, and sheets.

Following the trend of the pig lead market, lead pipe and sheets have been reduced in price, traps and bends are now quoted at net list. Solders are down three to four cents.

There has been no change in pipe, and supplies of smaller sizes are yet slow, but cast pipe fittings are reduced in price.

Compression goods continue firm, and no changes are made on range boilers, radiators or wares.

Black sheets are showing lower quotations and the galvanized are easier, but stocks are not yet normal. Bar iron is reduced in price, and old materials are considerably down.

There is a steady demand for plumbing supplies and a good deal of finishing up work being done, it is reported.

Enamelled Wares Fairly Active

Toronto.

ENAMELLED WARE.—For the season of the year there is a very satisfactory amount of business, and jobbers report sales good on lavatories and baths. There is a considerable amount of finishing work being done. A change is recorded in prices and present prices are 20 per cent. off, which constitutes a reduction of 6 per cent. With a further decline in raw material an easier condition is probable and there is some expectation that freight rates may later be reduced, and this would make conditions more favorable. Prices are as list.

Bath tubs, roll rim, 4, 4¼, 5 feet, 24 to 30 in. wide	$51 40
Bath tubs, 5½ ft.	57 10
All Steel Enamel Baths, 4, 4½ or 5 ft.. net	$16 25
Do., do., 5½ ft., net	17 50
Lavatories	
17x10" Apron F139 or P4045	15 30
18x24" Apron F154 or P3845 or P3847..	23 60
18x21" Apron F169 or P 4205	17 60
18x21" Roll Rim F197, F199 or P4655-6	15 40
17x19" Roll Rim F241 or P4345	12 60
Sinks, Roll Rim, 16 x 24 in.	18 10
Do., 18 x 30 in.	23 00
Do., 20 x 30 in.	24 70

Sinks, Flat Rim—	1 only	2 only	3 only
16 x 24	$7 60	$7 70	$7 80
18 x 30	8 50	8 60	8 70
20 x 30	9 70	9 80	9 90

All above list except lines marked net.
Discount 15% off these prices.

Change in Wares; Discount Now 20%

ENAMELLED WARES. — The discount on enamelled wares, which has stood at 15 per cent. since the lists were issued at the beginning of November, has been altered and 20 per cent. is now being quoted off list prices. The change, which goes into effect at once, has just been made, and includes baths, sinks and lavatories, which were put on list basis.

Closet Bowls Firm and Unchanged

Toronto.

CLOSETS—No change has taken place in prices and it is not considered that there will be any alteration at present. The opinion is that the peak has been passed and that from now on conditions will be more favorable. There is still a good volume of finishing up work reported, and jobbers state that they have been kept fairly busy. Quotations are as follows:

Closet, standard outfit	$34 00
Do., with post hinge seat	35 00
Do., white vitro, vitreous china or enamel-iron, with wash-down bowl and oak or mahogany post hinge seat	37 00
Do., add for reversible trap bowl	1 25
Do., add for siphon jet bowl	7 00
Do., for ⅜ in. valve on supply pipe	1 50
Do., deduct for supply pipe	0 80
Do., deduct for floor flange	0 60
Do., wash-down bowl, less spud	12 00
Do., reversible trap bowl, less spud	13 25
Do., siphon jet bowl, less spud	19 00
Do., "Richelieu" bowl	10 50
Do., extra for spud	0 60
Do., oak, or oak-vitro tank, with fittings, less seat	17 50
Do., white vitro, vitreous china, or enameled iron tank, with fittings, flush elbow and supplies, seat and cover	19 00
Do., wood strip seat and cover	3 75
Do., post hinge seat and cover	4 75
Do., add for bar hinge	0 25

Pipe Still Short in Some Sizes

Toronto.

PIPE.—Notwithstanding a large output of wrought pipe, there is still a certain scarcity or shortage of some sizes, and this seems more pronounced in those sizes that are used largely by the plumbing trade. Jobbers state that ½ inch, ¾ inch, and 1 inch pipe in both black and galvanized have been difficult to procure in any quantity. They do not find the same difficulty in the larger sizes. Prices are holding unchanged, though the outlook is stated to be more favorable, but no change is expected at present. List No. 46 is in use and is as follows:

LIST NO. 46
Standard Buttweld Pipe
Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
⅛	$ 6.50	$ 8.50	$	$ .....
¼	5.31	7.41	5.91	8.01
⅜	5.31	7.41	5.91	8.01
½	7.10	8.63	7.95	9.48
¾	8.80	10.87	9.95	12.02
1	13.01	16.07	14.71	17.77
1¼	17.60	21.74	19.90	24.04
1½	21.04	25.99	23.79	28.74
2	28.31	34.97	32.01	38.67
2½	44.75	55.28	.....	.....
3	58.52	72.29	.....	.....
3½	74.06	90.62	.....	.....

4	.....	.....	87.05	107.37	.....	.....

Standard Lapweld Pipe
Per 100 Ft.

	Steel		Gen. Wrought Iron	
	Blk.	Galv.	Blk.	Galv.
2	$32.01	$ 38.67	$ 35.71	$ 42.37
2½	48.26	58.79	54.11	64.64
3	63.11	76.88	70.76	84.53
3½	75.90	92.46	85.10	101.66
4	89.93	107.55	100.83	120.45
4½	1.05	1.29	1.30	1.54
5	1.22	1.50	1.52	1.80
6	1.58	1.95	1.97	2.33
7	2.06	2.53	2.53	3.01
8L	2.16	2.66	2.66	3.16
8	2.49	3.07	3.07	3.64
9	2.98	3.67	3.67	4.36
10L	2.77	3.41	3.41	4.05
10	3.56	4.39	4.39	5.21

Cast Pipe Fittings Show Reductions

Toronto.

PIPE FITTINGS.—Some changes in quotations of cast fittings are recorded and are a reduction. Cast fittings are now quoted at net list, instead of plus 10 per cent.; plugs are now 15 per cent. off list, in place of 7½ per cent.; and bushings are 17½ per cent, instead of 10 per cent. No alteration has been made in the price of malleable.s Delveries continue to improve, and the shortage is apparently over. Quotations are as under:

PIPE FITTINGS

Cast iron fittings	Net
Plugs	15%
Bushings	17½%
Unions ¼" to 2"	30%
Do., ½ in., 2½ to 4 in.	25%
Dart-Unions, blk., ¼ in. to 2 in.	8%
Do., ⅛ in., 2½ to 4 in.	5%
Do., galvd., add to black	30%
Nipples, blk. and galvd., ⅛ to 4 in.	50%
Do., 4½ in. and larger	40%
Do., running thread	20%
Couplings, 4-in. and under	20%

MALLEABLE FITTINGS

Class A	0 70	0 85
Class B	0 30	0 40
Class C	0 20	0 30

Soil Pipe and Fittings Hold Firm

Toronto.

SOIL PIPE AND FITTINGS.—There is no change to report in quotations of soil pipe or fittings. The demand is now lighter and sales are less. Prices continue to rule steady and no change appears probable, although it is hoped that the peak has been reached. Quotations are as follows:

SOIL PIPE (medium and extra heavy)—
2, 3, 5, and 6-inch, add 10% to list.
4-inch, net list.
8 inch, add 20% to list.
FITTINGS—
2 to 6 inch fittings, 20% discount.

Bar Iron and Steel Are Quoted Lower

Toronto.

IRON AND STEEL.—The market is easier on bar iron and steel and quotations are shaded, making a reduction of 50 cents per cwt. The easier trend of the primary markets had not reached the jobbers, but there has been a disposition to reduce stocks and the lower quotations are the result. There has been an improvement shown in deliveries and supplies are now in better shape than previously. Present quotations are the following:

IRON AND STEEL

Common bar steel, 3-16 in. and lighter	$ 5 50
Common bar iron, 3-16 in. and lighter	5 50
Common bar iron, ¼-in. and heavier	5 00
Angle base	5 50
Horseshoe iron	5 50
Tire steel	5 95
Band steel	6 00
Spring steel	12 75
Mining drill steel	28 00
Sheet cast steel	20 00
Sleigh shoe steel	6 00
Norway iron	15 00
Toe caulk iron	6 70
Hoop steel	6 00

Plumbers' Oakum Shows No Change

Toronto.

OAKUM.—Plumbers' oakum is holding at $9.50 per 100 pounds. There is a little easier tone shown in the better grades of oakum and it may be reflected in plumbers' oakum later on. Small quantities are quoted at 12 cents per pound.

Black Sheets Reduced; Galvanized May Ease

Toronto.

SHEETS AND PLATES.—The tendency is to easier prices on sheets and plates and some lower quotations have been made. The changes are more noticeable in black sheets than in the galvanized, on which there is little change. The quotations on the latter are still largely nominal, as although supplies are better than they were stocks are not yet abundant and some gauges are hard to obtain in any quantity. Better prices may be had in some cases, but as one jobber remarked, it is no use quoting lower figures without being able to deliver the goods. Prices have been reduced at the mills by the independents, and their quotations are now practically on a level with those of the Steel Corporation. Following are general quotations:

BLACK SHEETS

14 gauge	8 35	9 50
16 gauge	8 40	9 60
18-20 gauge	8 45	10 20
22-24 gauge	8 50	10 25
26 gauge	8 55	10 30
28 gauge	8 65	10 00
3-16 in. plate	6 50	7 00
¼-in. boiler plate	5 50	6 00

Prices shown are for full cases. An extra charge of from 25c per 100 lbs. is made for less than case lots.

GALVANIZED SHEETS

	Premier		Apollo	
10¾ oz.	11 00	11 80	11 75	12 55
U.S. 28	11 20	12 00	11 35	12 15
U.S. 26	10 90	11 70	11 05	11 85
22 and 24	10 75	11 55	10 90	11 70
18 and 20	10 45	11 25	10 60	11 40
16	10 45	11 25	10 60	11 40
12 and 14	9 70	10 50	10 45	11 25

An extra is now charged on galvanized sheets, 10¾ oz. and 28 ga., when shipped out in sheets 3 feet wide. The extra charged over prices shown above is 20c per 100 pounds. Other gauges show no change for different widths.

Prices shown are for full cases. An extra charge of 25c per 100 lbs. is made for less than case lots.

No Changes on Bibbs or Valves

Toronto.

COMPRESSION GOODS. — Nothing new is noted with regard to valves and bibbs. Supplies are stated to be ample for present needs and the demand for smaller sizes continues fair. Prices remain unchanged and no alteration is thought to be likely at present. With a reduction in the price of raw material the chances are that a revision may be probable, but it is not expected until after the new year. Quotations are the following:

Compression work, standard	25%
Fuller work, standard	30%
Bath cocks, compression	25%
Bath cocks, Fuller	28-30%
Flatway stop and waste cocks, standard	25%
Roundaway stop and waste cocks, standard	25%
Brass steam cocks, standard	add 10%
Globe, angle and check valves, standard	add 5%
J.M.T.	plus 10%
J.M.T. C	Net
Gate or straightway	Net
Jenkins gate valve	10%
Standard gate	list plus 5%
Jenkins Globe	list plus 20%
Radiator valves, standard	23%
Do., removable disc	38%
Basin Cocks—	
No. 1 and 1, Fuller pattern	30%
Compression	16%
Quick opening	28%

Radiators Are Quieter; Prices Hold

Toronto.

RADIATORS.—The demand for radiators is falling off, but business in these lines has been satisfactory. Prices continue unchanged and are likely to be firm it is thought. With a continued recession in raw material tendencies should be easier from now on, but freight rates and present costs of pig iron are higher than they were last year. Lists and discounts are as follows:

Revised radiator list prices are for 1, 2, 3, 4, and 5-column radiators per square foot.

38 in., $1; 32 in., $1.10; 30 in., $1.15; 26 in., $1.20; 2 3in., $1.26; 22 in., $1.30; 20 in., $1.36; 18 in., $1.40; 16 in., $1.50; 14 in., $1.55; 13 in., $1.60. Disount 34% for hot water and 35% for steam.

Wall Radiators—5 ft., $1.15; 6 ft., $1.10; 7 ft., $1.05; 9 ft., $1.05; 12 ft., $1.05. Discount 34%.

Conductor Pipe, Trough Quiet and Unchanged

Toronto.

CONDUCTOR PIPE AND TROUGH.—The demand for conductor pipe and eave troughing is much lighter now and little business is reported. Quotations are unchanged and are as follows:

PIPE (Conductor)

2 in., in 10-ft. lengths, list	....	8 00
3 in., in 10-ft. lengths, list	....	9 70
4 in., in 10-ft. lengths, list	....	12 80
5 in.. in 10-ft. lengths, list	....	17 50
6 in., in 10-ft. lengths, list	....	21 30

Add 25% to the above list.

TROUGH (Eave)

O. G., Square Bead and half round. Size in girth:

Per 100 ft.		Per 100 ft.	
8-in	$6 90	15-in	$12 50
10-in	7 70	18-in	16 00
12-in	9 10		

Add 25% to the above list.

No Change on Conductor Elbows

Toronto.

CONDUCTOR ELBOWS.—Sales are smaller now on these goods and no change is made in prices. Lists are still quoted plus 50 per cent. and are as under.

ROUND CORRUGATED OR CRIMPED ELBOWS

2 inch, list	$1 90
3 inch, list	2 20
4 inch, list	3 60
5 inch, list	9 00
6 inch, list	10 50

Add 50% to above list.

Fair Demand Reported For Furnaces

Toronto.

FURNACES.—There is a good business reported in furnaces, and manufacturers are finding it difficult to make deliveries on some lines, although an improvement is shown. Prices are holding firm.

Stoves and Ranges; Many Small Orders

Toronto.

STOVES AND RANGES.—The demand continues good for stoves and ranges, but orders are mostly being shipped from foundries singly or in small lots, proving that dealers are buying from hand to mouth and not carrying stocks as formerly. Manufacturers have not been able to catch up on orders and warehouse stocks are either depleted or are very small. Prices continue firm without change visible.

Improved Supplies of Stove Pipes and Elbows

Toronto.

STOVE PIPES.—An improvement is reported in deliveries of Canada plate, and supplies of stove pipes and elbows are in better shape. There is a good demand for these lines. Prices continue unchanged.

Stove Pipes—Made up, 6 in., common, $23.57 per 100 lengths; bright, $29.45; 7 in., $26.09; Bright, $31.22 per 100 lengths.

Stove Pipe Ibows—6 in., Light, $3.15 doz.; heavy, $3.65; 7 in., light, $3.50; heavy, $4.09.

Range Boilers Quieter; Prices Holding

Toronto.

RANGE BOILERS.—No change is reported in price of range boilers and sales are slowing up on these goods. Quotations are the following:

RANGE BOILERS—	Standard	Ex. Heavy
30-gallon	$15 00	$18 00
35-gallon	18 00	21 00
40-gallon	20 00	23 00
52-gallon	25 00	29 00
66-gallon	35 00	40 00
82-gallon	42 00	48 00
100-gallon	55 00	65 00
120-gallon	70 00	80 00

Cotton Waste Shows no Change

Toronto.

COTTON WASTE. — There is no change to report in the quotations on cotton waste. Prices are holding at recent decline, although some look for a gradual lowering as the result of continued recession of the market. Business is stated to be smaller, but is seasonable. Quotations are as below:

WASTE	
Cream, Polishing	0 22½
WHITE	
XXX	0 21½
XX	0 19½
X	0 18½
XXX	0 23
XX, grad.	0 21½
XLCR	0 20
X Empire	0 18½
E Press	0 16½
X Special	0 15½
XC	0 17½
COLORED	
No. 1	0 15
No. 7	0 14
No. 1A	0 13
No. 1B	0 12
Fancy	0 18
Lion	0 16
Standard	0 14
Popular	0 12
Keen	0

Above lines subject to trade discount for quantity.

Lower Lead Prices; Traps and Bends Net

Toronto.

LEAD PRODUCTS.—Further changes have taken place in prices of lead products and lower quotations are made, as was forecast in last issue of Sanitary Engineer. Traps and bends are now selling at net list, instead of plus 15 per cent. above list. This is the second reduction, and these goods are 30 per cent. below figures of a month ago. Lead pipe has also been reduced and is now quoted at 14½ cents, less 10 per cent. Lead sheets have made a decline of 2½ cents and present quotation is 10½ cents per pound. Solder has been reduced from 2 to 3 cents per pound. The pig lead market has shown signs of recovery and is a little firmer again, and the opinion is that bottom of the decline has been reached. Following are latest quotations:

Lead pipe, list, per lb.	0 14½
Lead waste pipe, list, per lb.	0 15½
Do., over 8 in., list, per lb.	0 16
Lead pipe is subject to discount of 10%.	
Lead traps and bends	Net
Lead sheets, 4 to 6 lbs. sq. ft., in rolls, lb.	0 10½
Cut sheets ½c to ¾c lb. extra and cut sheets to size 1c lb. extra.	
Solder, wire, lb.	0 36
Do., strictly, lb.	0 27
Do., commercial, lb.	0 25½
Do., guaranteed, lb.	0 29
Do., wiping, lb.	0 25
Zinc sheets, per lb.	0 18
Calking lead	0 10¾

Waste Materials Drop; Market Dull

Toronto.

WASTE MATERIALS. — The market has been very dull for waste materials and prices are largely nominal. The price decline in almost all metals has had its effect on this market and has discouraged dealing. All prices are downward on metals, and tires and rubber are in the same direction. As previously noted the following quotations are only nominal:

WASTE MATERIAL		
No. 2 busheling		13 00
Stove plate, per ton	24 00	25 00
Scrap pipe	0 09	0 10
Yellow brass	0 07½	0 08
Red brass		0 15¾
No. 1 machinery cast	34 00	35 00
Heavy melting steel	22 00	23 00
Heavy copper	0 12	0 12½
Light copper	0 10½	0 11
Scrap zinc		0 05½
Light brass	0 05	0 05½
R.Rd. wrought iron, No. 1, per gr. ton	24 00	25 00
Heavy lead pipe	4 25	4 75
Old rubbers, boots and shoes		0 04
Overseas lumbermen's rubber boots	0 04	0 04½
Bicycle tires	0 01	0 02
Automobile tires	0 01½	0 02
Tea lead		0 03

Easier Tone Reported on Corrugated Sheets

Toronto.

CORRUGATED SHEETS.—An easier tone is apparent in corrugated sheets, but though supplies are improved they are not yet normal, and jobbers are hardly in a position to make lower quotations when they may not be able to fill orders. The demand is smaller now and as stocks get better prices will gradually ease off it is stated.

Corrugated Sheets—	Per 100 Sq. Ft.
No. 28 gauge	11 25
No. 26 gauge	12 00
No. 24 gauge	18 75
No. 22 gauge	22 25
No. 20 gauge	26 50
No. 18 gauge	32 75

Less 7½%.

Lighter than 24 gauge and wider than 27 inches, 75c a square extra.

Boiler Tubes Firm; Demand Lighter

Toronto.

BOILER TUBES.—Sales of these articles are more limited now and stocks though smaller are generally sufficient to meet demands. Quotations as follows are unchanged:

	Per 100 feet	
BOILER TUBES—	Seamless	Lapweld
1 inch	$28 00	$.....
1¼ inch	32 00	.....
1½ inch	33 00	.....
1¾ inch	35 00	.....
2 inch	35 00	30 00
2¼ inch	38 00	32 00
2½ inch	46 00	36 00
3 inch	54 00	45 75
3½ inch	70 00	49 00
4 inch	96 00	63 00

Ingot Metals More Active; Some Advances

Toronto.

INGOT METALS.—A more buoyant tone is evident in ingot metals, and it is believed that the decline has been halted. Tin and spelter are firmer and a higher price is noted. Most metals are displaying a stronger tone and it is thought that the depression has passed and though there may be declines from time to time, buyers will regain confidence and there will be a gradual recovery.

TIN.—A better feeling is reported in the tin market and it has made advances in most markets. Local quotations are now 45 to 47 cents per pound.

LEAD.—The decline in the markets appears to have been checked on this metal, and latest reports indicate a firmer tone. Locally it is quoted at $7.75, which is a decline since the last market report.

COPPER.—This metal continues quiet, although a little more enquiry is being made for it. Quotations on casting are lower at 19 cents.

SPELTER.—The market locally shows weakness and quotations are down to 8¼ cents.

ANTIMONY.—It is stated that this metal is being offered at lower prices in outside markets, but prices are unchanged here at 9 to 13 cents, according to grade.

ALUMINUM.—An easier tone is reported in aluminum, but no change of price is made and business is quiet. Quotations are 37 to 39 cents.

WINNIPEG

WINNIPEG, Dec. 13.—Prices in the majority of cases have remained firm for plumbing and steamfitting lines, but the tendencies are for lower prices, and it is doubtful whether the changes will be sudden or not. The lead and copper market seems easier. Pig iron has dropped a trifle in price. Pipe prices are expected to be easier soon but no change has been recorded as yet. Enamel ware prices have been advanced 7½ per cent. at the factory but no changes have been made by the jobbing trade so far.

Sheets may be lower in price soon and tinned plates have an easier tone. Some shipments of Canada plate have been received at last.

Business is quieter but a fair trade is being done in these lines.

Better Outlook For Canada Plate

Winnipeg.

CANADA PLATE.—Some shipments of Canada plate have arrived at last and the future looks bright. Manufacturers have advised the trade that they will be able to supply their needs for Canada plate for next season. It is not possible to name a price as yet as a cost cannot be arrived at owing to variations in the rate of exchnge. However, orders can be booked for delivery next season at prices to be mutually agreed upon.

Enamelled Ware Up In Price

Winnipeg.

ENAMELLED WARE. — Baths and lavatories are selling in fair quantities. The trade is buying carefully and although the season is late there is some demand. The factories have advised that they have increased their prices 7½ per cent., but no change has been made as yet by the jobber.

Expect Lower Price On Sheets

Winnipeg.

SHEETS AND PLATES.—There is not much of a demand for either black or galvanized sheets at the present time, and buyers are only purchasing in limited quantities, expecting the price to go lower from week to week. Importers state that lower prices would not bring them any more business and this is one reason why there has been very little change quotable, although with considerable competition obtaining in this market the situation from the price standpoint is nominal. Gradual reductions may be expected.

Black Sheets—10 gauge, $10; 12 gauge, $10; 14 gauge, $10; 16 gauge, $10.35; 18 gauge, $10.40; 20 gauge, $10.40; 22 gauge, $10.45; 24 gauge, $10.45; 26 gauge, $10.50; 28 gauge, $10.65.

Galvanized Sheets—16 gauge, $12.35; 18 gauge, $12.50; 20 gauge, $12.50; 22 gauge, $12.65; 24 gauge, $12.65; 26 gauge, $12.80; 28 gauge, $13.40; 10¾ oz., $13.80.

Big Reduction on Lunkenheimer Valves

Winnipeg.

VALVES.—There is a big reduction recorded this week on Lunkenheimer valves and the new prices are approximately 35 per cent. lower.

Lead Traps and Bends Are Down in Price

Winnipeg.

LEAD TRAPS AND BENDS.—The new price quoted this week for lead traps and bends is approximately 22 per cent. lower. The present price is 5 per cent. advance on the list.

Lead Pipe and Waste Lower in Price

Winnipeg.

LEAD PIPE AND WASTE. — Lower prices are recorded this week for lead pipe and lead waste and are as follows: Lead pipe, $13.86; lead waste, $14.76.

Advance In Price Of Sheet Zinc

Winnipeg.

SHEET ZINC.—A new price this week on sheet zinc is 35 per cent. higher. The present price is 25 cents per pound.

MAINS LAID NOW

Scarboro' ratepayers want the work of installing the water mains in the Birch Cliff district to continue, and are supporting the resolution of the G.W.V.A. They consider that work might be found for the unemployed in this way. A considerable quantity of pipe is now lieing on the ground ready for installation. As the ground is free from frost and the prospects for open weather good, it was urged upon Commissioner Assex to have the work continued as long as weather conditions permitted.

WORLD-WIDE CAMPAIGN FOR AIR-TIGHT VALVES

Belleville.—R. J. Graham, president of Graham's, Ltd., Belleville, has been appointed managing director of the H. A. Wood Manufacturing Co., Belleville.

The H. A. Wood Manufacturing Co. have the sole rights to manufacture and sell the Wood Air-Tight Valve in Canada. Concurrent with this appointment it is rumored that the English interests which control the patents for Europe and the British Isles have ambitious plans to launch a world-wide organization to include, not only the Canadian, but the projected American company.

BEACH WANTS WATER FROM CITY

Hamilton.—Its own pumping plant inadequate to meet present and future demands, a deputation representing the Burlington Beach Commission, composed of Col. J. J. Grafton, James Crooks and George S. Kerr, K.C., waited on the Works Committee and urged that Beach residents be furnished with water from the city's pumping station. All expenses in connection with the scheme would be borne by the Beach Commission. With the exception of a short distance between the Beach road and the Beach pumping plant, all water mains were already laid. The population of the Beach was increasing every year, and the commission realized that its own pumping plant was not going to be adequate to meet the increased demand for water.

RICHMOND HILL PLANS OWN WATER SYSTEM

Richmond Hill.—At the January elections Richmond Hill ratepayers will vote on a by-law to provide a municipal water system to cost $95,000. At a public meeting presided over by A. J. Hume the plan for the waterworks was discussed.

Water will be obtained either from artesian wells on Christopher Thompson's farm, two miles north of here on Yonge Street, or from what in years gone by was the Wilson Pond, right in the village.

As the old Wilson dam was washed away many years ago, it will be necessary to build a new dam if the water is to be procured from that source.

Meetings to consider the proposals will be held every Monday until the election.

SMITHS FALLS MUST HAVE FILTRATION PLANT

Smiths Falls, Ont.—Dr. J. W. S. McCullough, Chairman of the Ontario Procincial Health Board, has written that it will be necessary for council to begin work at once on a filtration plant.

He recited that the water unfiltered was not safe for domestic use and that for years the Provincial Health Board had been trying to induce the local authorities to install a filtration plant. He said that the chlorination of the water was only a temporary thing, and that to be safe the water should be filtered. He said that Arnprior, Renfrew, Perth, Rockland, Hawkesbury, Cobourg and Oshawa had filtration plants and that the Provincial Health Board would brook no longer delay. The probable cost of a filtration plant would vary from $20,000 to $32,000 for each million gallons to be treated each 24 hours.

MUELLER

Ground Key Cocks and Compression Stop, Supply and Drain Cocks

The Cocks illustrated on this page—A-1120, A-1185, A-1128, A-1251, A-1260 and A-1188 (reading down from left to right), represent a few of the many *MUELLER* patterns—each designed to fill a special need to perfection.

MUELLER Plumbing Brass Goods are made from Muellerite—a metal that is 85% pure copper. Muellerite resists corrosion better—can be handled with greater mechanical precision—takes a finer finish and a heavier nickel plating than common brass, which is less than 60% copper.

Once you begin to use *MUELLER* Plumbing Brass Goods, you will quickly recognize their superiority—in the ease with which they can be installed, and in the dependable service they invariably give. Every *MUELLER* Cock is tested to withstand 200 pounds hydraulic pressure without leaking.

Write for detailed description and prices. Mail orders given immediate attention.

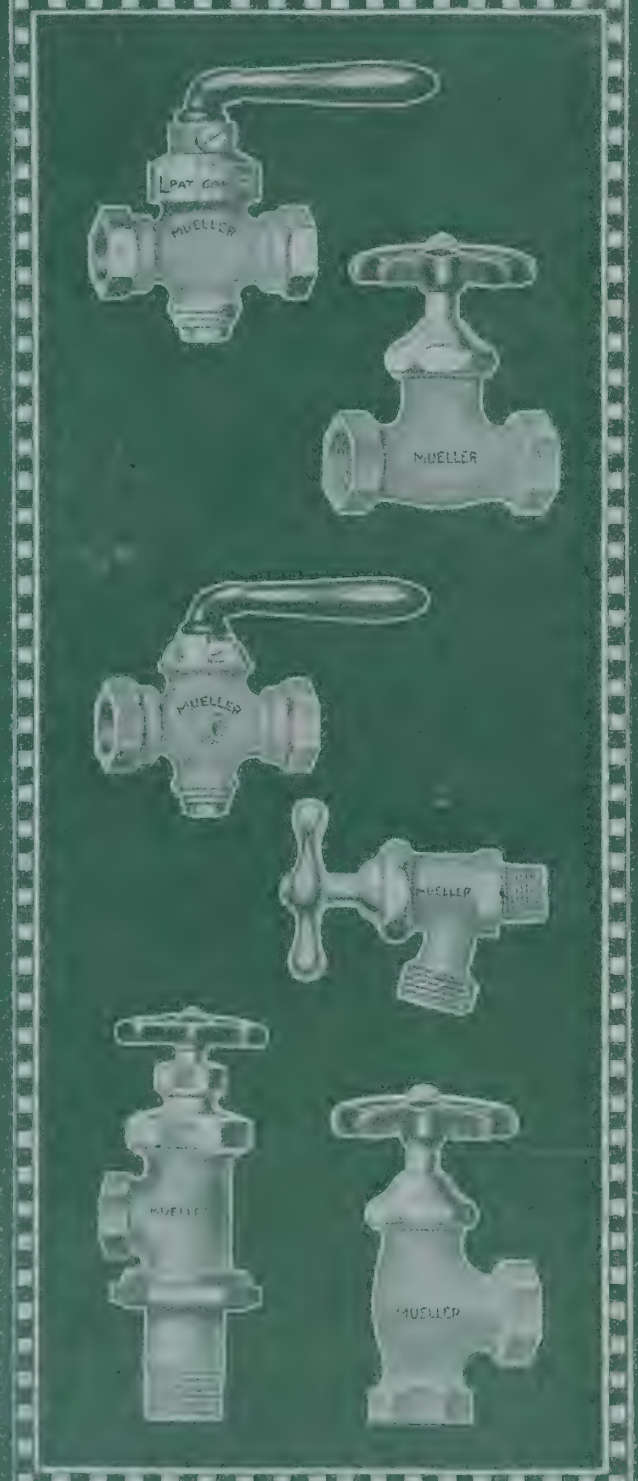
H. Mueller Mfg., Co., Ltd.
Sarnia, Ontario

Water, Plumbing and Gas Brass Goods and Tools.

American Factory at Decatur, Ill., U. S. A.

Branches, New York, San Francisco

Mueller Metals Co., Port Huron, Mich., Makers of "Red Tip" Brass Rod: Brass and Copper Tubing: Forgings and Castings in Brass, Bronze and Aluminum: Die Castings in White Metal and Aluminum: also Screw Machined Products.



Fuel Oil Supply Increased

Montreal.—The fuel oil situation, compared with that of several weeks ago, is greatly improved. Supplies have come to hand freely of late, and this has had the effect of increasing the surplus and prices have slumped very considerably. It is understood that those using the commodity extensively as a means of power have, in some cases, been oversupplied with the product, so that there is not the outlet at present that there formerly was. Prices are now around 17 to 17¼ cents per gallon and this is a sheer drop of 5 to 7 cents within a short time. As transportation improves the situation, both as to price and supply, should be easier.

A PROBLEM IN SEWAGE DISPOSAL

Continued from Page 18

Fig. 4 shows a section of the tank taken on the line B-B.

Fig. 2 is a plan of the tank, as it appears just above the sand filters.

The planks shown in the drainage chamber are foot rests for the attendant when he is inspecting the downward filter and aeration beds.

It will be noted that there is a question mark in the dimension line which shows the depth of the tank above the water line. This means that this dimension varies with the depth that it is necessary to set the tank below the ground. If there are any plumbing fixtures in the basement it will be necessary to set this tank much lower than would be the case if all the fixtures were above the grade level.

The circumstance of soggy ground as a site for the proposed disposal field would lead us to recommend this type of tank for the installation referred to in your letter.

The materials required for this tank are:—

7 1-2 yards of gravel.

12 barrels of cement.

1 1-3 yards of pebbles (1-2-in.) for breathing chamber.

1 piece of pine 2-inx4-in., 4 ft. long.

1 piece of pine 2-in.x12-in, 6 ft. long.

1 piece of pine 2-in.x2-in., 6 ft. long.

1 bundle of 1-2-inch lath.

Ten 3-4-inch bolts, 8-inches long, with nuts and washers.

2 pieces 3-4-inch reinforcing bars 12-ft. long.

Four pieces of 3-4-inch reinforcing bars 4 ft. long.

2 yards of expanded metal mesh.

3 ring lifts, for manhole covers.

20 feet of 4-inch sewer pipe for vents (approximate).

Three 4-inch drain tiles.

1 tee for inlet.

This list does not provide for forms for concrete, nor for the house sewer or drain pipe.

The quantity of concrete required and the length of the vent pipes, will vary with the depth to which it is necessary to build the tank.

CONSTRUCTION AND RENOVATION

Continued from Page 25

Radway Centre, Alta.—Utilities Commission has authorized the expenditure of $6,500 for erection of a school for Mazeppa S. D. No. 3961.

* * *

Vilna, Alta.—Erection of a school is planned by Sunny Knole S.D., No. 3914. F. Oakes, secy.

* * *

Craigmyle, Alta.—Murdock McGregor, Craigmyle, has general contract for erection of a school for Georgetown S. D. No. 3232.

* * *

Dog Pound, Alta.—W. R. Vaughan, Botha, Alta., is awarded general contract for erection of school for Dog Pound S. D.

* * *

Dollarton, B. C.—Rodgers Bros., 1136 Comox St., Vancouver, have general contract for erection of an assembly hall costing $5,500 for Canadian Robert Dollar Co.

* * *

Vancouver, B.C.—John K. Sinclair, 517 Eleventh Ave. E., has general contract for erection of addition to orphanage costing $5,500 for Alexander Orphanage Board, 1726 Seventh Ave.

* * *

Three Hills, Alta.—Erection of a school costing $40,000 is contemplated by School Board.

* * *

Toronto, Ont.—Deposit cheques of all contractors who submitted tender for construction of live stock arena costing $2,000,000 at Canadian National Exhibition for City has been returned and City Architect has been instructed to make some changes in the plans.

Board of Education, W. W. Pearse, secy-treas., 155 College St., purchased property on Rose Ave., for the purpose of enlarging school.

* * *

Vancouver, B.C.—By-law will be voted on Jan. 13th, for erection of a new City Hall and auditorium to cost $1,000,000.

Catalogues and Booklets

BLOWERS, FORGES AND DRILLS

A new and exhaustive catalog of 184 pages has been issued by the Canadian Blower & Forge Co., Ltd., of Kitchener, Ont., covering the various lines of forges, etc., manufactured by this firm.

The catalog is well gotten up and printed on excellent paper, and is thoroughly illustrated.

Nearly 100 forges and blowers are shown and other lines include exhausters, fans, drills, punches, shears, bending machines, tire setters, combination woodworking machines, and fan system apparatus for heating, ventilating, drying and mechanical draft. Also air washers, humidifiers, dehumidifiers, pumps, etc.

The catalog which will be sent on request is numbered 19C.

'SAN-O-LA' BATH ROOM WARE

We have received a new catalog "E" from the Art Brass Co., Inc., 299 E, 134th St., New York City. The catalog which is well got up fully illustrates the wide range of bath room fixtures and accessories manufactured by this firm both in the nickel plated brass goods and in the opal and pure white enamel finish.

The lines manufactured and listed include everything necessary for the bathroom except the bath and basin. All goods made by the firm are warranted perfect or will be replaced.

A feature is made of one piece brass castings combining strength with beauty of design.

A special point is made of the display cabinets mounted with assortment and dealer helps.

A copy of catalog can be had on request.

ROOF FLASHING HANDBOOK

We have received from the Barrett Mfg. Co., of Montreal, Toronto, Winnipeg, etc., a copy of a new booklet entitled Roof Flashing Handbook, Details and Specifications.

In an introductory to the book the Barrett Mfg. Co. say: "Years ago the Barrett Company brought out the Barrett Specification for flat roofs for permanent buildings and the result simplified and standardized roofing practice to an extent that was not foreseen at the time."

The same engineering skill, they say, has been applied to solving another roofing problem—that of providing reliable standard flashings.

The result is described in the book and the company state that architects and engineers can now specify these flashings with every confidence.

Some of the advantages claimed for Barrett flashings are: They provide amply for expansion and contraction; their elasticity takes care of settlement or shrinking; all joints watertight under every weather condition; will not pull away from roof or wall; are practical and easy to install; are adaptable to every complex wall construction; are durable and require no maintenance or repair; eliminate division of responsibility between contractors; and are moderate in cost.

The flashing blocks are 8 inches long, 5 inches high and 4 inches wide. Internal and external blocks are provided for wall corners.

The metal flashing form is manufactured of galvanized iron in 8-foot lengths. Barret flashing strips are put up in standard widths of 12 inches in rolls of 50 feet. From 125 to 150 pounds of Barrett's Elastigum are required for every 100 lineal feet of flashing.

The book is fully illustrated, shows method of applying and blue print drawings illustrate the methods of taking care of typical situations.

A copy should be secured by all interested in roofing problems.

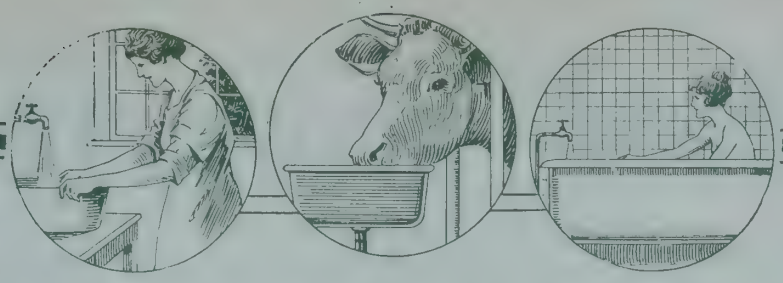
GAS APPLIANCES

We have received from the Johnson Gas Appliance Co., Cedar Rapids, Iowa, a catalog of atmospheric gas appliances and burners for soldering, melting, tempering, annealing and case hardening.

The makers state that all Johnson furnaces maintain 1800 to 2000 degrees of heat without any forced air blast or blower, and that they will successfully heat soldering irons in all sizes, can be used for the melting of babbitt and solder, and for heat-treating any carbon steel, such as chisels, reamers, dies, cutters, taps, etc.

A number of different styles and sizes of bench and auto-blast furnaces are shown in the catalog as well as bunsen burners suitable for students, doctors, dentists and others, and for laboratory work where a small but high temperature flame is required.

Lighting burners, gas pressing and laundry irons, and oven burners are also listed in catalog, and all appliances are fitted with the Johnson direct jet regulator.



A Big Field of Prospects For the *Westco* Tankless Water System

IN rural and suburban districts and on farms, the need of running water is urgent. The convenience and reliability of the Westco Tankless Water System appeal strongly to those people having electricity available.

These Westco features make strong talking and selling points:

(a) Requires no storage tank. Water is pumped direct from source of supply to taps.

(b) Entirely automatic; open tap, pump starts at once; close tap, pump stops.

(c) Inexpensive to buy, install and run.

(d) Is vibrationless and silent.

(e) Has no gears, no belt, no valves.

(f) Has only one moving part and is self-lubricating.

But Above All—Thoroughly Reliable.

Handsome Profits for Westco Agents

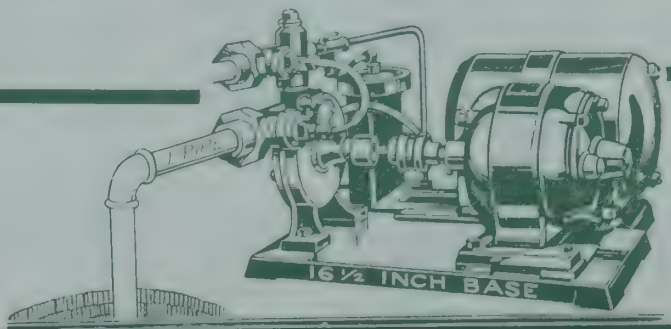
Farmers everywhere are demanding a reliable, compact water system such as the Westco. In addition to this huge field of farmer prospects, there are the suburban and outlying districts of cities and towns where the hand pump and well are still being used. Our dealers and agents are making splendid profits. There are still a few really good territories left open.

Write us at once for our selling arrangement and other particulars.

Good Commissions for You.

Westco Pumps Limited.

707 Yonge St., Toronto, Ontario



Westco

Made in Canada

AIR CONDITIONING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

AIR LINE SYSTEMS
C. A. Dunham Co., Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

AIR PRESSURE TANKS
The Canadian John Wood Mfg. Co., Toronto.

AIR VALVES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn.
W. H. Cunningham & Co., Toronto, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
J. H. Williams Co., Brooklyn, New York.
Steel & Radiation, Ltd., Toronto.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

ASBESTOS GOODS
James Morrison Brass Mfg. Co., Toronto.

BOILERS, STEAM OR HOT WATER
The Canadian John Wood Mfg. Co., Toronto.
Gurney Foundry Co., Limited, Toronto.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal.

BOILER FEED REGULATORS
Empire Mfg. Co., London and Toronto.
C. A. Dunham Co., Ltd., Toronto.
James Morrison Brass Mfg. Co., Toronto.

BOLTS, EYE
J. H. Williams & Co., Brooklyn, N.Y.

BRASS GOODS, VALVES, ETC.
Canadian Brass Co., Ltd., Galt, Ont.
C. A. Dunham Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
Kerr Engine Co., Ltd., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Trimont Mfg. Co., Roxbury, Mass.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wallaceburg Brass & Iron Mfg. Co., Ltd., Wallaceburg, Ont.
Wolverine Ltd., Toronto, Ont.

BRASS PIPE AND TUBE
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Wolverine Ltd., Toronto, Ont.

CELLAR DRAINERS
Galt Brass Co., Limited, Galt.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CEMENT
The Northwestern Chemical Co., Marietta, Ohio

CIRCULATORS
Atlas Engineering & Machine Co., Ltd., Toronto.

CLAMPS "C"
J. H. Williams & Co., Brooklyn, N.Y.

CLOSETS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

CONDENSATION UNITS
The Weste Pumps Limited, Toronto.

COUNTRY RESIDENCE EQUIPMENTS
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DAMPER REGULATORS
C. A. Dunham Co., Ltd., Toronto.

DEHUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

DISCS
The Commercial India Rubber Manufacturing & Supply Co., Ltd., London, Eng.

DRAINAGE FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

DRINKING FOUNTAINS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

DROP FORGINGS
J. H. Williams & Co., Brooklyn, N.Y.

EJECTORS, STEAM
Kerr Engine Co., Walkerville.
James Morrison Brass Mfg. Co., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.

ENAMELWARE
Amherst Foundry Co., Ltd., Amherst, N.S.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Limited, Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.
Standard Sanitary Mfg. Co., Ltd., Toronto.

ELECTRIC PUMPING MACHINERY
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

EXPANSION TANKS
Toronto Hardware Mfg. Co., Ltd., Toronto.

FITTINGS
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.
United Brassfounders & Engineers Ltd., Manchester, Eng.
Warden King, Ltd., Montreal.

FLUSHOMETERS
Beaton & Corbin Mfg. Co., Southington, Conn.
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Galt Brass Co., Ltd., Galt.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Standard Sanitary Mfg. Co., Ltd., Toronto.
Wolverine Ltd., Toronto, Ont.

FLOOR AND CEILING PLATES
Beaton & Cadwell Mfg. Co., New Britain, Conn.
W. H. Cunningham & Co., Toronto, Ont.
Wolverine Ltd., Toronto, Ont.
Empire Mfg. Co., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
James Morrison Brass Mfg. Co., Toronto.

FURNACES
Gurney Foundry Co., Limited, Toronto.
Steel & Radiation, Ltd., Toronto.

GASOLINE ENGINES
Empire Mfg. Co., Ltd., London and Toronto.

GAS WATER HEATERS
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Hotstream Heater Co., Cleveland, Ohio.

GRATES FOR RANGES, FURNACES AND BOILERS
McIntyre & Taylor, Toronto.

HEAT GENERATORS
Galt Brass Co., Galt, Ont.
James Morrison Brass Mfg. Co., Toronto.

HEATING APPARATUS
C. A. Dunham Co., Ltd., Toronto.

HEATERS
The Hotstream Heater Co., Cleveland, Ohio.
Lord & Burnham Co., Ltd., Toronto.
Steel & Radiation, Ltd., Toronto.
Warden King, Ltd., Montreal and Toronto.

HEATING SYSTEMS
C. A. Dunham Co., Ltd., Toronto.

HUMIDIFYING APPARATUS
B. F. Sturtevant Co., Hyde Park, Boston, Mass.

HOIST HOOKS
J. H. Williams & Co., Brooklyn, N.Y.

HOT WATER COILS, DOMESTIC
McIntyre & Taylor, Toronto.

HUMIDIFIERS
B. F. Sturtevant & Co., Hyde Park, Mass.

KEROSENE WATER HEATERS
Hotstream Heater Co., Cleveland, Ohio.

LAUNDRY TUBS
The Canada Metal Co., Ltd., Toronto.

LEAD
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Hoyt Metal Co., Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.

MACHINISTS' TOOLS
J. H. Williams & Co., Brooklyn, N.Y.

MALLEABLE IRON CASTINGS
Gurney Foundry Co., Limited, Toronto.

MIXING VALVES
Canada Metal Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Port Hope Sanitary Mfg. Co., Ltd., Port Hope.

PACKING
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

PACKLESS RADIATOR VALVES
Kerr Engine Co., Walkerville.
C. A. Dunham Co., Ltd., Toronto, Ont.

PIPE AND RADIATOR HANGERS
Beaton & Cadwell Mfg. Co., New Britain, Conn.
Beaton & Corbin Mfg. Co., Southington, Conn
W. H. Cunningham & Co., Toronto, Ont.

PIPE, BLACK AND GALVANIZED
Canadian Tube & Iron Co., Ltd., Montreal.
Empire Mfg. Co., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
H. Mueller Mfg. Co., Ltd., Sarnia, Ont.
Steel & Radiation, Ltd., Toronto.

PIPE CLEANSER
Chamberlain Desolvo Co., Ltd., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.
Wolverine Ltd., Toronto, Ont.

PIPE JOINT COMPOUNDS
Wolverine Ltd., Toronto, Ont.
James Morrison Brass Mfg. Co., Toronto.
Empire Mfg. Co., Ltd., London and Toronto.

PIPE, SOIL, AND FITTINGS
Anthes Foundry Co., Toronto and Winnipeg.
Empire Mfg. Co., Ltd., London and Toronto.
James Morrison Brass Mfg. Co., Toronto.
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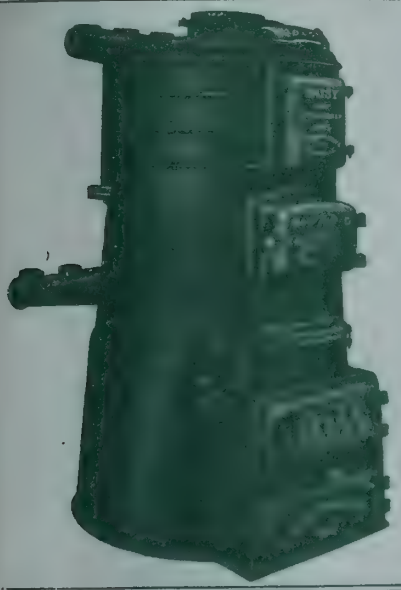
Over 60,000 Daisy Hot Water Boilers Now in Use—Are *You* Selling Your Share?



Daisy Hot Water Boilers are easiest to sell because they have an established reputation for exactly meeting the requirements of the modern home.

Every Daisy you instal will help build bigger business by bringing repeat orders for installation in neighboring homes later.

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Greetings
MAY OUR FRIENDS IN THE TRADE LOOK BACK WITH PLEASURE, AS WE DO, TO A YEAR FILLED WITH GOODWILL AND EARNEST SERVICE. WE WISH THEM ALL A MERRY CHRISTMAS AND A HAPPY NEW YEAR.
HOYT METAL COMPANY
EASTERN AVE. & LEWIS ST.
TORONTO

What Will Santa Claus Bring Our Politicians ?

"SANTA'S POLITICAL STOCKING" is the title of J. K. Munro's feature article in MACLEAN'S December 15th issue. Mr. Munro thinks old Kris Kringle should bring Premier Meighen a "cap that will pull down over his ears, so that he can't hear what his Cabinet colleagues are saying about him"; a hobby horse for Crerar; a tin sword for Ballantyne; a "white plume" for Lapointe; a case of grape juice for Rowell, and a pair of long trousers for Mackenzie King.

Mr. Munro also sizes up the East Elgin farmers' victory, and lets you know its real significance.

Dr. Wilfred T. Grenfell, C.M.G.

THE famous physician of Labrador has contributed a striking piece of graphic fact-fiction for the Christmas issue—"Deeds of 'Derring Do'," which describes the brave fight waged by Skipper Loveday, his crew and wife—in the dismantled Silver Queen. They expected to find a watery grave that Christmas week, but the wife's dauntless spirit put so much courage into the men that they won a fearful fight against the December gales.

Christmas Issue of Maclean's, December 15th

"THE EMANCIPATION OF POLLY MacCRAE"
By F. B. M. Collier.
The so-human story of two spinster sisters in Old Ontario and how the crippled one won a husband.

"THE JEST OF CIRCUMSTANCE"
By Gertrude Arnold.
Phyllis lands in a Canadian city, fresh from England, and there is no fiancé to meet her. The girl ultimately finds happiness just as the Christmas Carols commence—but how?

"OUR GOLDEN FLOOD ROARS EAST"
By Nicholas North.
Every few minutes a train loads up at one of our many mammoth grain elevators, taking our wheat to the seaboard.

"THE CITY OF PERIL"
By Arthur Stringer.
The largest instalment yet published of this sensational dramatic serial of Bolshevistic plotting in New York.

"—AND ALL POINTS NORTH."
By Nellie L. McClung.
A gripping story of the pioneer men and women of the Peace River country—many even out of the reach of railroads, telephones and doctors. Read what trained nurses are doing in the pioneer settlements.

"OF CHRISTMASES AND GOVERNORS"
By Colonel George Ham.
The "Colonel" has spent Christmas in some peculiar places. His experiences form the foundation of a great story. Also, Col. Ham tells of the human side of some of our Governors-General.

"WHO GETS OUR PAPER PROFITS?"
By Agnes C. Laut.
The real facts of our paper, pulp and sulphite products, and some information as to where the biggest slices of the melon go.

"THE YULETIDE GLOW"
By Charles Christopher Jenkins.
What converts Scrooges into human beings, 'round about December each year? Get in a crowd with "Jenk" and you'll find out.

"BUTTERED SIDE UP"
By C. W. Stephens.
The hero of this story loses his job a few days before Christmas. But he doesn't lose the girl, and lands a real job Christmas Eve.

"ORATORS I HAVE ENJOYED"
By "Margot" Asquith.
The wife of the ex-Premier tells what she thinks of Lloyd-George, as an orator, and others.

Review of Reviews Section

"The War Spirit in the World"—By Sisley Huddleston.
"The Irresistible Thing"—By Sir Gilbert Parker.
"German Universities Hard Up"—By Allen W. Porterfield.
"The Bleeding Statues of Tipperary"—By Edwin E. Slosson.
"A Modern Burton"—By Charles A. Merrill.
"Lansdowne's Memories"—By Marquis of Lansdowne, K.G.
"Flesh and Blood Inspired Barrie"—By William de Wagstaffe.
"Doctors Dupes of Fashion?"—London Lancet.

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"CANADA'S NATIONAL MAGAZINE"

DECEMBER 15th ISSUE *On All News-stands* ***20c***

Or Send $3.00 for a Year's Subscription to MACLEAN'S MAGAZINE, 143-153 University Avenue, Toronto, Canada

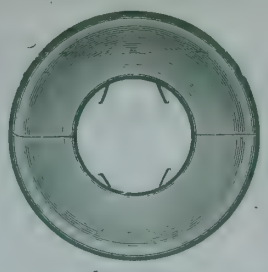
Merry Christmas

WE appreciate the kind favors of past years and extend to you — our patrons and friends, our heartiest wishes for a Merry Christmastide—a healthy, happy and prosperous 1921.

James Morrison Brass Mfg. Company
LIMITED
93-97 Adelaide Street West - TORONTO, ONT.

OPEN VIEW
NO. 10-A

The CEILING PLATE that's better



TOP VIEW
NO. 10-A

THE NO. 10—A NARROW FLANGE PLATE—IS A STEEL HINGED PLATE. FLANGES ¾" WIDE. HIGHLY FINISHED. ESPECIALLY DESIGNED FOR TWIN CONNECTION "NARROW."

The split ceiling plate is coming more and more into use than ever and ALWAYS GIVES A NICE FINISH, because it can be attached to mains and risers at the very last, and is not exposed during completion of a building on the floors.

High quality at the right price.

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Gem No. 4 Automatic Air Valve

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Write for catalog showing our complete line of specialties.

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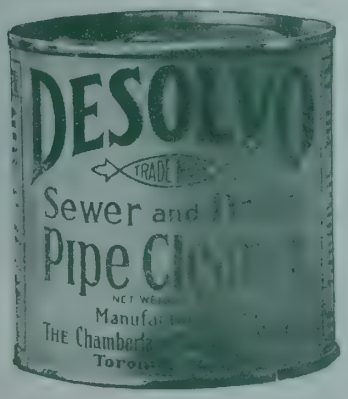
Thaws Frozen Pipes



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They Buy Often

Desolvo has big sales because it clears clogged or frozen pipes quickly.

Desolvo belongs in that class of goods you like to sell—it goes "right to the spot" with customers because it exactly fills the need for clearing clogged or frozen pipes without expensive plumbing bills—and they buy often.

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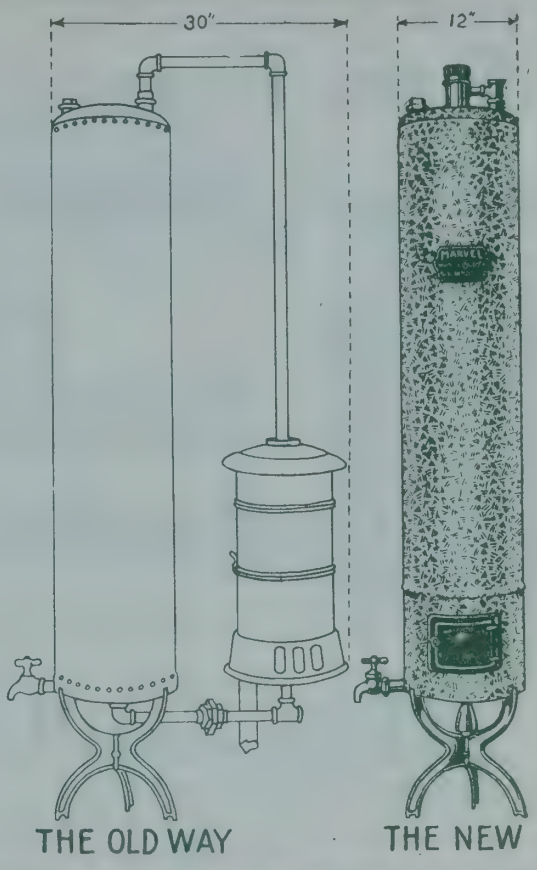
Ontario Representative: L. F. Mayne, 99 Quebec Ave., Toronto, Ont.

Western Canada Representatives: N. D. McPhail & Co., Standard Bank Bldg., Vancouver, B.C.



THE old style side arm combination was as inefficient as candle light. It was awkward, a gas-eater, slow, heated more air than water, and, like the candle, it has given place to the new and better way.

GAS WATER HEATER
Marvel
Gas Heater and Boiler Combined

is delivered on the job completely assembled, and, with the addition of a single gas connection, is as quickly and easily installed as an ordinary range boiler.

It heats water quickly, with little gas. Is odorless, silent, safe. Brings back no complaints, avoids adjustment losses.

Made of extra heavy material. In all sizes. Tested to 150 pounds under working pressure, and guaranteed for two years. It's the best non-automatic water heater made. Write direct, or to your jobber, for prices and literature.

Made in Canada

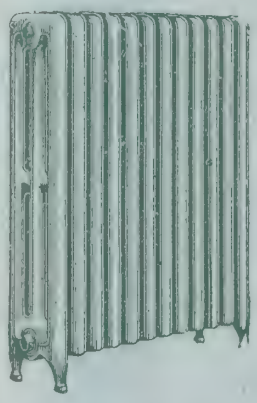
Sold and installed by plumbers exclusively

BASTIAN-MORLEY LIMITED

Makers of Automatic and Non-Automatic Gas Water Heaters

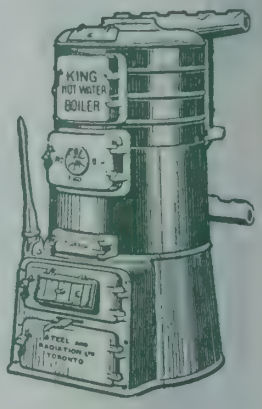
Hanson Street and Hillingdon Avenue, TORONTO, CANADA

Turn Every Customer Into a Salesman



When your customers want a Hot Water Boiler and Radiators, give them the

KING HOT WATER BOILERS AND IMPERIAL RADIATORS



You will make them praise the efficiency of your work, and nothing could possibly do more to help your business.

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A complete stock of all lines is carried at our Montreal warehouse.
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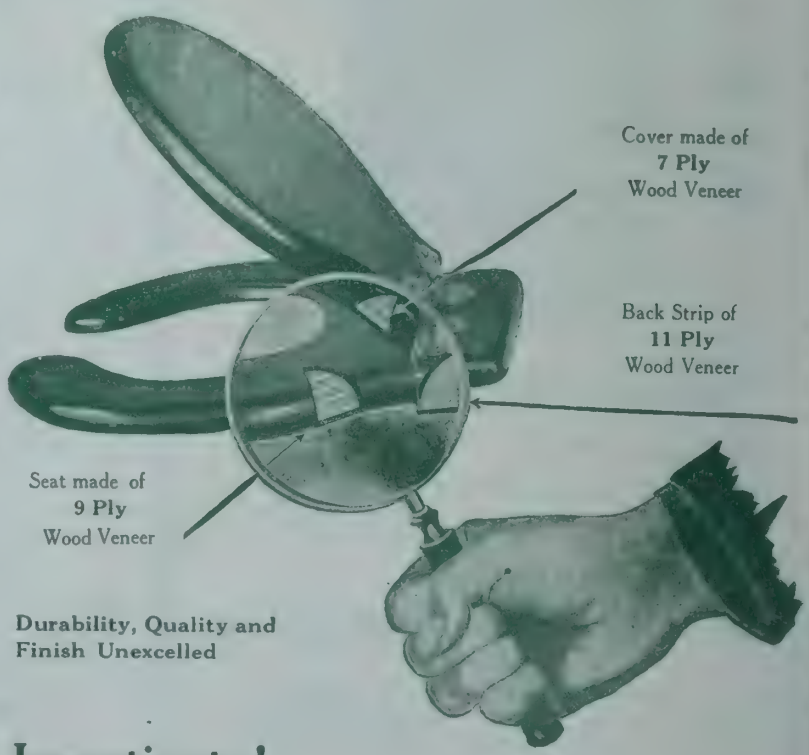
The Everlasting Veneer Toilet Seat

For Strength, Cleanliness and Hygiene

MANUFACTURED of air-seasoned wood veneer in 7, 9 and 11 plys, according to the amount of strain and wear required of its respective parts, the veneer held together by means of our special wood cement that is proof against extremes of heat, cold and dampness, the **Everlasting Toilet Seat** will outlast any other on the market.

Specially recommended for cold, damp basements, schools, factories or other public places where the closets are subjected to all manner of abuse or rough usage. The **Everlasting Veneer Toilet Seat** will never crack, warp or split.



Durability, Quality and Finish Unexcelled

CANADIAN VENEERING CO., Inc.
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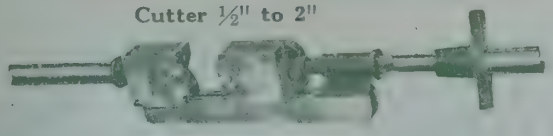
Investigate!

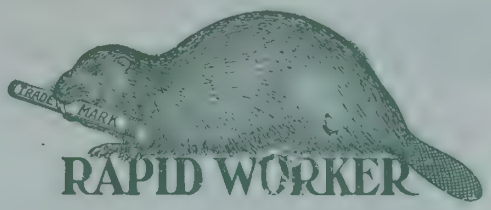
Cutter ½" to 2"



1. One man can cut any size thread with them from ⅛ inch to 12 inches.
2. They cut threads to suit the fittings.
3. They are rigid in construction.
4. Their adjustment is simple.
5. Their parts are interchangeable.

5 Beaver Facts

By George Warner



No. 25—1" to 2"

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Recommend Riveted Range Boilers, the kind that stands the test of time, not the flashy kind that appears good for the first year or two and then gives out.

Positive Circulators

Operate quietly and give absolute satisfaction

Successful Installations

Positive Circulators have been successful installed in: apartments, bank buildings, churches, factories, garages, government institutions, residences, schools and various other buildings. Write to-day for full particulars.

The Positive Circulator is driven by an electric motor, connected to the wiring of a building, and is operated by an ordinary switch. The Circulator may be installed in the main return line of the hot-water heating system, close to the boiler, or on the flow line from the boiler. When the motor is in operation the Circulator forces the water through the system at a rapid rate so that the hot water from the boiler is carried up to the radiators with only a few degrees loss in temperature. The power required by the pump is very little. The Positive Circulator forces the water to distant radiators, where it is sometimes difficult to get gravity circulation.

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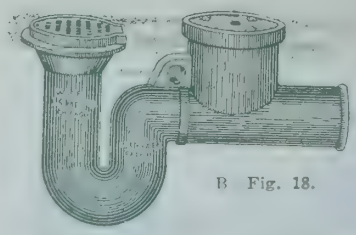


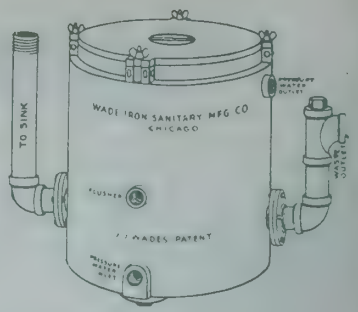
B Fig. 18.

Wade Accessible Clean-out Drain Flushing Cesspool Back Water Gate Trap—Valve Combination.

Plan on Installing WADE Up to date FITTINGS in 1920

WADE Back Water Gate Valves and House Drainage, Sewer Flushing Fittings embody the latest improvements in design and construction.

They are approved by sanitary engineers and comply with health ordinances.



B—Fig. 27.
Wade Accessible Flushing Clean-out Water Jacket Grease Catch Basin for Kitchen Sinks

Wade Iron Sanitary Manufacturing Co.

551 W. Fulton St
CHICAGO

B—Fig. 126.
Wade accessible flushing cleanout floor wash and backwater valve combination.

B—Fig. 13.

Shows Wade running trap for installation at front wall of building for prevention of sewer gas and flooding of basements from main sewer in street.

Send for Catalogue

B—Fig. 1

B—Fig. 1 shows Wade Accessible Straight-way Clean-out House Drain Flushing Back Water Gate Valve.

Pipe Fittings

Made in Canada

M Brand Pipe Fittings, etc., give a service and satisfaction that will invariably get you re-orders and much new business as well.

A trial of the goods will prove this claim.

CAST IRON FITTINGS
With this brand mean fittings made with iron of high tensile strength—proper proportions and correct tappings.

RECESSED DRAINAGE FITTINGS

MALLEABLE FITTINGS
With this brand mean fittings made of Air Furnace Refined Iron, reamed and tapped to gauge with perfect threads.

Standard and Extra Heavy Flanged Fittings and Flanges. Galvanizing
Malleable and Gray Iron Castings of all Kinds.

International Malleable Iron Co., Limited, Guelph, Ontario, Canada

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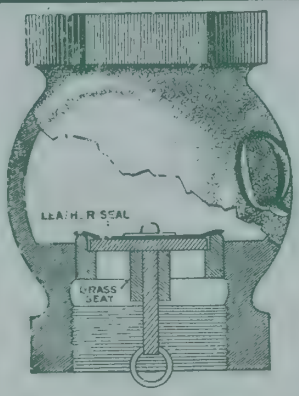

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And it Just *CAN'T* Leak

There are more pump troubles caused by "leaky" valves than from all the wear and tear which occurs in the average life of a pump.

The "Q" valve will overcome all priming troubles, and water once raised above it, through the suction line, will not leak out.

If you want the pumps you instal to give maximum, you will require to use the only valve on the market that JUST CAN'T LEAK.

Made in sizes from 1 to 8-inch.

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The coming spring will see a big spurt in the building trade, road construction, etc. Contractors, are you ready? Our C.T. Brand of wrought pipe has been

Thoroughly Inspected

by practical, experienced men. It is tested to 600 lbs. hydraulic pressure, and branded with our trade-mark. We carry this line of reliable pipe in sizes ⅛ in. to 4 in. Black or galvanized. We also manufacture nipples and couplings, black and galvanized, in all sizes.

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Stocks carried by our Canadian Representatives
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Manufacturers

Iron Pipe Joint Cement

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ALLOWS NO LEAKS

Liquid and Powder Form.
Packed in 1-lb., 5-lb., 15-lb., 25-lb., 50-lb. cans; 100 and 250-lb. barrels. Ask your jobber for prices or write us direct.
Made in Omaha, Neb., U.S.A.

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FOR SALE—PLUMBERS' SUPPLIES OF ALL makes, at prices that protect the plumber. American Plumbers' Supplies, 14 Craig St. West, Montreal.

NATIONAL PIPE HANGER

Adjustable to fit any size pipe

Put up in compact rolls convenient for carriage or storage.

Pair of snips only tool necessary.
Saves time and money.

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SE-MENT-OL
Guaranteed to Repair Leaks in Boilers and Heating Systems
Qts.-$4.00 Gal. $14.00
THE NORTHWESTERN CHEMICAL CO.
Marietta, Ohio and Montreal, Canada

WE CARRY A FULL LINE OF

BOILERS, RADIATORS, WARM AIR FURNACES AND REGISTERS

HAMILTON STOVE AND HEATER COMPANY, LIMITED, HAMILTON, CANADA

GREETING

A new year is about to dawn!

The one just closed has marked the decline of war impetus, with attendant readjustment of fictitious values, and a reversion to conservative tendencies.

A change of any kind is always more or less disturbing. But when it is for more stable conditions, we are not only glad when it is over, but glad that it has taken place.

Some are suffering now, more will suffer before the winter is over.

BUT THERE IS EVERY INDICATION THAT THE SPRING OF 1921 WILL START THE BRIGHTEST AND MOST PROSPEROUS ERA IN THE HISTORY OF OUR FAIR CANADA.

LOOK AHEAD!

And may you have your share of the good things to come.

ANTHES FOUNDRY LIMITED

MANUFACTURERS

CAST IRON SOIL PIPE AND FITTINGS

JEFFERSON AVE.
TORONTO

SASKATCHEWAN AVE.
WINNIPEG

Christmas 1920

MAY this Christmas be, for you, one of true rejoicing—unclouded by sorrow, undimmed by trouble—filled with the spirit of the Yuletide.

May it be a time of happy reunions, of new friendships cemented and old friendships renewed—a time of golden memories, of the knowledge of work well done and days well spent—a time of good-fellowship and goodwill.

And may the brightness and cheer of this Christmas time shine far along the pathway of the coming year.

Galt Brass Company, Limited

Galt -- Canada

J. A. COOK & SON LIMITED
STATIONERS
77 BAY ST.
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